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"NEAR MISSES" IN X-RAY DIAGNOSIS*

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For those of us who are stay-at-homes, relegated to the prosaic task of muddling along in civilian practice while the flower of our profession has gone off to war, the reported exploits of our armed forces in foreign lands and storied seas seem remote and, therefore, doubly thrilling and romantic. Time was when we, as youngsters with remarkably elastic imagination, could transport ourselves at will from the drab surroundings of our own back yard to the heaving decks of the pirate ship on the Spanish Main, to the trackless wastes of the last of the Indian country, or in fact to any spot or period in time which at the moment might suit our fancy. We were utterly unabashed by the lack of authentic stage property, able to transform a strip of wooden lath pointed at one end with a shorter piece nailed crosswise near the other into a wicked scimitar with jeweled handle in the twinkling of an eye.

This morning I ask you to turn back the hands of the clock, around and around again and again, to enjoy once more for a brief moment the pleasures of the land of make believe. I promise you that the game is interesting and not entirely devoid of profit, for the game we shall play, though its setting be placed over and around the far flung islands of the Southwest Pacific, will be staged with properties immediately available in every hospital and office building where medicine is practiced within the confines of the continental United States.

In the Army and the Navy and the Marine Corps the business of flying war planes calls for elaborate periods of graduated training which we with enormous impudence will ignore, for in our imaginations we are already aces of the air, the idols of our ground crews, itching for action and lots of it. I invite you to join me as members of a four motored bomber crew; you may select whichever position appeals to you most. We are off on a thrilling reconnaissance flight, armed to the teeth with bombs of every size and description, a full complement of cannon and machine guns of heavy and light caliber scattered at various points of advantage throughout the fuselage, nose, tail and top wing turrets. We will write our own orders as we proceed and make plenty of news for Elmer Davis to dispense to a waiting public at home. Since we must have something to represent the plane and its armament let us use whatever x-ray equipment is at hand and let us think of the diseases which beset our patients as the Japs we are out to apprehend and destroy.

We are much too eager to waste time in pointless cruising about and at once we sight our first objective in the form of a patient who has come to our hospital with the complaint of rectal bleeding which her physician has correctly diagnosed as a carcinoma of the sigmoid requiring surgical attention. Just for practice, if not pure sport, we drop down recklessly and rake

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this small Jap supply ship with heavy machine gun fire. For good measure our bombardier lets fly with a small bomb in the form of an admission chest film. He misses the waist of the ship but scores a near miss which springs her ribs and turns up an entirely unsuspected solitary pulmonary metastasis. That's sport. Our aim may be a little poor but we're having fun.

Being green at the game and terribly eager we try our next enemy, some form of disturbance which is seriously interfering with respiration and, this time, our chest "shot" scores a hit in the form of a clearly evident mass of thyroid tissue extending downward through the thoracic inlet pos-

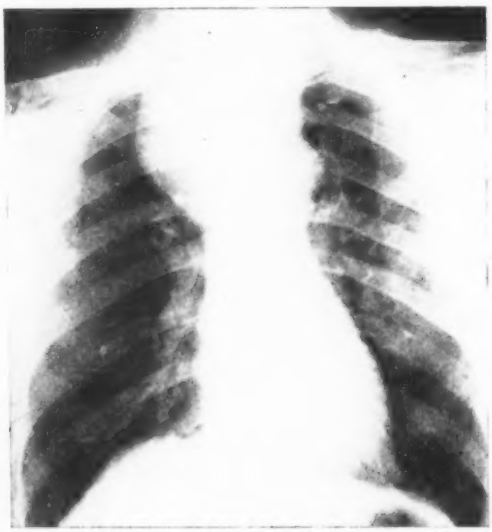

Fig. 1—Substernal extension of the thyroid.

terior to the sternum and a little to the right (fig. 1). Flushed with success, we find another victim and aim for the same spot. We're good; we can't miss—but we do. To be sure it's a near miss because there in the extreme upper portion of the mediastinum, again slightly to the right of the mid line, is a shadow to all intents and purposes the twin of the one we have just encountered, but this time it is not produced by substernal thyroid tissue. This is an aneurysm of the innominate artery (fig. 2).

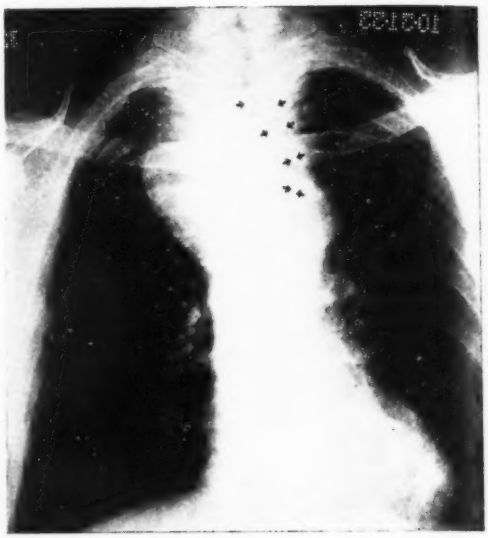

Fig. 2—Innominate aneurysm.

What's the matter there, bombardier? You're supposed to be an expert. Let's see you try your luck at this one. Again the ocean leaps high into the air just off the starboard beam and once more our observer reports results in the form of that selfsame shadow in the upper mediastinum, once

Fig. 3—Primary bronchogenic carcinoma.

more just to the right of the mid line. We can't claim a direct hit, however, for this time it is neither substernal thyroid tissue nor innominate aneurysm. The thoracic surgeon reports a neoplastic mass which our pathologist finds is a primary bronchogenic carcinoma (fig. 3).

Here comes a bigger ship and smelling the likelihood of anti-aircraft protection we hunt for altitude and let go with three bombs. The range finder shows us a much larger mass this time in the upper mediastinum. The second bomb, a swallow or two of barium, shows deviation of the esophagus as well as the trachea and our third bomb, a kymographic exposure, tells us that this mass does not pulsate. We make a turn and come back at right angles to the course of our target and this time, with our lateral projection, we locate the mass posterior to the trachea. Our recent experiences are teaching us to be cautious and this time we do not claim a sinking but merely report that we have damaged the enemy. We have enumerated a few possibilities such as those in our recent experiences, but we hesitate to run the risk of frank error. The ship is ultimately boarded by one of our naval vessels in the form of the thoracic surgeon again and it is he who reports to our commanding officer that the mass is an aberrant thoracic thyroid despite its unusual position posterior to the trachea. Yes, we made a series of near misses in that instance. We came close and we set the stage for the surgeon, but we missed the diagnosis ourselves.

Let's take a "potshot" at this slow-moving, unescorted ship. Really this is too easy, simply a hugely enlarged heart. But again we have scored a near miss and one of the other planes in our squadron gets credit for the kill by showing the large heart to be in fact a heart of normal proportions surrounded by a considerable amount of pericardial fluid, easily recognized when some of this is aspirated and replaced with air. By now we are getting just a little bit annoyed with the performance of our bombardier who pleads for just one more chance. Far below us, plowing along wearily at slow pace, is a lumbering cargo ship which we have been watching for some time. Actually he is an elderly gentleman who has been seen repeatedly during the course of treatment for chronic osteomyelitis in one tibia. All of a sudden he has developed a new chain of symptoms characterized by extreme dyspnea, engorgement of superficial veins over the upper chest, edema and cyanosis of face and neck. The pilot suspects that there is something significant in the change of course, wonders audibly about the possibility of mediastinal lymphoblastoma, but the bombardier drops a stick which quickly exposes the whole situation—just a commonplace case of cardiac enlargement which he thinks amply explains the profound circulatory disturbance, and most of us in the crew are inclined to believe that his assumption is justified (fig. 4). The

Fig. 4—Lymphoblastoma invading the auricles of the heart.

commanding officer of our radiation therapy section refuses to let his dive bombers go to work and this time one of our own submarines surfaces nearby and our pathologist goes aboard the stricken vessel, promptly reporting the startling news that

the simple cardiac enlargement which we reported had masked a most astounding state of affairs. The pilot's hunch had been correct. This was lymphoblastoma but an expression of that disease new to our entire crew. The enlargement of the cardiac shadow was the result of extensive invasion of the wall of the left auricle by lymphoblastomatous tissue which also involved the entire mass of mediastinal lymphoid tissue. Shall we call that a "near miss"?

Were it not for our bombardier's remarkable performance in the next few minutes I am afraid that he might have been demoted at this juncture. With remarkable accuracy from high altitude and with what appeared to be a pure random shot he picked up a poorly defined double shadow in the cardiac area, and his second bomb in the shape of the administration of barium, clinched his snap diagnosis of a sizable diaphragmatic hernia involving nearly one-half of the stomach. There was a very near miss followed by a smashing direct hit right down the funnel.

On his very next try he scores again, reporting diaphragmatic hernia to the right of the mid line on the basis of a circumscribed accumulation of air to the right and posterior to the cardiac shadow (figs. 5a, 5b). No need for the coup de grace which, however, is supplied in due time, again by the submarine captain, our pathologist. We are all in better spirits now and cheer lustily as the bombardier uncovers another of the same sort. There is the air pocket well above the diaphragm posterior to the heart but for good measure he orders the machine gunner to send down a volley of tracer bullets in the form of administered barium and at once wishes that he hadn't done so for the barium slips innocently past the air pocket and into a perfectly normal stomach in normal position (figs. 6a, 6b), and even the subsequent barium enema fails to show any of the hollow viscera within the lesion (fig. 6c). The attack was not an entire loss, however, because the ship was amply spotted and slowed down and was soon overtaken by our friend, the thoracic surgeon, who identified the lesion as a large pulmonary cyst, communicating with a bronchus. We are in no mood to criticize our bombardier after his recent exploits.

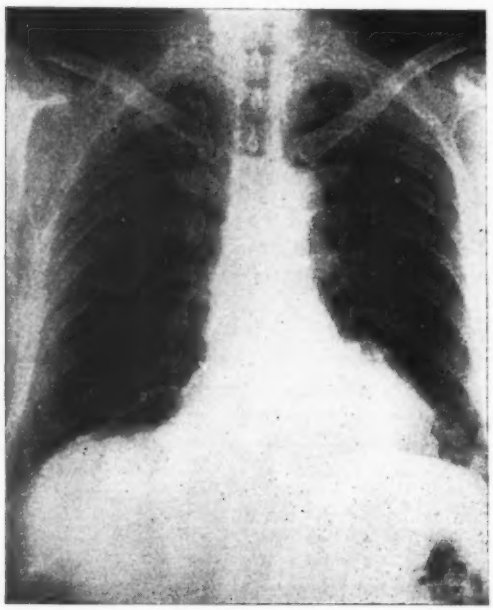

Fig. 5—(a)—Diaphragmatic hernia, antero-posterior.

Fig. 5—(b)—Diaphragmatic hernia, lateral.

He misses the next target but the miss is very close for the malignant gastric ulcer

so typically studded with masses of neoplastic tissue protruding into the base of the crater turns out to be a benign peptic ulcer which has eroded through the entire wall of the stomach into the pancreas, but he follows up with a direct hit which clearly identifies the cause of profound pyloric obstruction as a small annular carcinoma at

Fig. 6—(a)—Pulmonary cyst with bronchial communication, antero-posterior.

the extreme lower end of the organ (fig. 7). Now comes another near miss and one which is really heartbreaking. He had the target directly on the intersection of the crosswires. The characteristics of a large proliferative, annular neoplasm deforming the lower end of the stomach and ulcerated near the pylorus itself seemed unmistakable (fig. 8), and yet we can only claim a near miss which resulted in operative intervention and the ultimate discovery that the lesion was in fact a chronic benign ulcer involving the mucosa of the duodenum on one hand and the stomach on the other hand and surrounded with an extensive mass of pyogenic granulation tissue simulating carcinoma.

Fig. 6—(b)—Pulmonary cyst with bronchial communication, lateral.

Fig. 6—(c)—Same case following barium administration.

And now he tries to blast from the surface of the ocean a sleek and elusive destroyer. With deft fingers he manipulates the controls of the bombsight, searches out the vitals of his prey, and yells with exultation as he uncovers a small but ugly looking ulcer on the lesser curvature within that last inch and a half supposedly reserved for neoplasms. Almost since he can remember he has had it drummed into his ears that gastric ulcers in this locality are almost uniformly malignant. Somehow he has taken this belief at face value and he reads into the mounded depression which surrounds the somewhat conical crater a sessile tumor which has ulcerated at its very center, or which perhaps has developed on the base of an originally benign lesion. Subsequent resection and searching examination of the tissue removed shows no suggestion of the expected microscopic evidence of neoplasm. This was a near miss, but a very important one because in short order proof positive was forthcoming regarding the true nature of the lesion and resection of such ulcers is certainly a wise move.

Fig. 7—Prepyloric annular carcinoma.

But our game must end—it cannot go on uninterruptedly, and we are glad to stop with a glorious hit upon an enemy plane carrier. At very long range and in spite of heavy smoke screening the last bomb in our rack whistles true to its mark and the proud carrier breaks in two amidship. In the course of routine screening of all patients admitted to the hospital we pick up the telltale skeletal signs of erythroblastic anemia in a child entering the pediatric service. We follow up our advantage quickly with skull and extremity films which prove the diagnosis beyond doubt and by telephone we beat the patient to the pediatric clinic with the diagnosis of his relatively rare disease figuratively wrapped in cellophane.

Fig. 8—Chronic benign pyloric ulcer.

Somewhat facetiously, I am afraid, but with the sincere purpose of demonstrating the thrill which can be obtained from the daily practice of radiology, I have presented you with a few of the experiences which convince the members of our specialty that we can be of real service even though our observations and opinions are by no means uniformly infallible.

CRANIOCEREBRAL TRAUMA*

A DISCUSSION OF GENERAL MEDICAL AND NURSING CARE

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MEDICAL CORPS, ARMY OF UNITED STATES

The subject of head trauma is so broad that not even a cursory review could be given in one short period. Therefore, I have elected to speak upon one phase of the problem. Perhaps it would have been more in keeping with the times had I selected a topic like "penetrating wounds of the brain," or that extraordinarily interesting new group "blast injuries to the brain." However, I selected the less dramatic title deliberately, for it is so easy to overlook and misapply these simple nursing and medical measures that it takes constant repetition to keep us reminded of their importance.

Inflexible, routine treatment of patients suffering from head trauma is a dangerous conception; no other group of surgical patients demands such individual consideration. Excellent therapy for one patient may be poison to another; yet the two, to superficial examination, may not be unlike in their clinical aspects. Alert, watchful care is perhaps the most important feature and since the patient's condition may vary from hour to hour, constant, efficient nursing is of prime importance.

The symptoms of traumatic shock are observed infrequently in the uncomplicated case of head trauma. As a matter of practical importance, if the patient is in shock when first seen one-half to one hour after injury, one should be careful in seeking for other injuries—a broken neck, a fractured femur, or a ruptured viscus with intrathoracic or intraperitoneal hemorrhage.

When signs of surgical shock are observed, the treatment of this state takes precedence over every other consideration. The application of external heat, the administration of plasma, fluids, stimulants and sedatives, all these and other shock treatment methods are too well known to bear repetition here.

The common practice of rushing unconscious patients to the x-ray room is dangerous if used routinely. Skull roentgenograms may be almost indispensable for diagnosis in some cases but certainly in the vast majority of head injuries this examination contributes no important data during the acute phase of the illness. When roentgenograms are indicated it is essential that the nurses, orderlies and x-ray technicians understand the elementary dictates of first-aid care. Rough handling in transferring the patient to the x-ray table contributes to many fatal outcomes. Portable x-ray equipment has reached such a high degree of perfection that satisfactory film of the head can be made without moving the patient.

Roentgenograms of depressed skull fractures are invaluable, but in most instances the diagnosis of depression can be made clinically by knowing the type of object striking the head, and more important, by palpating the skull through the scalp wound. When extradural hemorrhage is suspected, a linear fracture through the middle meningeal groove is useful evidence. When the fracture extends into the accessory nasal sinuses an x-ray examination may rarely disclose air in the ventricles or the subarachnoid space, thereby giving information which may be imperative in the proper management of the case. However, these are matters which are of importance only when surgical intervention is contemplated and never during the primary treatment of the unconscious patient.

Restlessness is a disturbing early complication of head trauma. If it is only of mild degree, simple nursing measures are sufficient; when extreme, sedation becomes necessary. The time-honored practice of giving morphine to restless patients is conceded dangerous by most authors. As a matter of fact, in certain basal injuries in which the hypothalamus or brain stem is affected, morphine in tiny doses (1-24 to 1-12 gr.) is a valuable therapeutic adjunct. However, the customary dose of 1-4 to 1-2

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grain is dangerous because of the depressing effects upon the respiratory centers.

Paraldehyde is, perhaps, the best available drug to quiet the restless patient. It may be given by mouth, by rectum or by vein. For an adult an average oral dose is one ounce of the elixir every four to six hours as needed; when administered by rectum twice this amount may be safely used; when used intravenously 2 to 3 c. c. of this elixir in 10 c. c. normal saline, slowly administered, is adequate. A mixture of bromides and chloral is also a safe sedative in head trauma. The barbiturates, unless given in very large doses, are not effective and in many cases seem to add to the excitability of the patient. Extreme restlessness may last for several days and in treating this group of patients it is best to let them thrash about the bed under restraint for at least half of each 24-hour period.

Adequate nourishment is always a problem in the unconscious patient. Intravenous dextrose is adequate for one or two days, but if unconsciousness persists, protein deficits must be supplied by gavage. A basic caloric intake should be maintained throughout the illness and the usual vitamin deficiency should be supplemented.

The optimum fluid intake level is a moot question. In some clinics severe dehydration is practiced. Not only is the fluid intake drastically reduced but further dehydration is accomplished by magnesium sulphate orally and rectally and by hypertonic dextrose solutions intravenously. The proponents of this method justify it by assuming that the control of intracranial pressure is the major consideration in the treatment of head trauma and that it is effectively accomplished in this manner.

Other observers believe that this radical form of dehydration is not only unnecessary in the majority of patients, but is often harmful. The principle of dehydration is founded upon the conception that most patients with head injuries suffer from increased intracranial pressure. There has been accumulated a vast amount of data, experimental and clinical, which indicates that the intracranial pressure in the acute state of injury is seldom greatly elevated and is often normal or lower than normal. In my own clinic a high spinal fluid pressure is considered valuable evidence favoring a surgical complication — extradural, subdural or intracerebral clot.

Under average conditions a fluid intake of 2000 c. c. per 24 hours is recommended. It is wise to consider the individual needs of the patient and the influence of temperature and humidity upon fluid requirements. In the unconscious patient fluids are best supplied intravenously as 5 or 10 per cent dextrose—the first 1000 c. c. as 5 per cent dextrose in Ringer's solution and the second 1000 c. c. as 10 per cent dextrose in distilled water. Ten per cent dextrose should be given very slowly or else the sugar will be spilled into the urine. With prolonged unconsciousness the 2000 c. c. fluid level is maintained by gavage.

SPINAL PUNCTURE

There is a wide variation in opinion regarding the usefulness of cerebrospinal fluid withdrawal in the treatment of acute head trauma. Some observers maintain that the practice is dangerous while there are those of equal authority who contend that spinal fluid drainage is one of the most valuable therapeutic measures.

There is little doubt that the dangers of lumbar puncture in head trauma have been over-emphasized; in fact, in some clinics the aversion to the procedure borders on the superstitious. To reach a decision in regard to spinal puncture one must study the effects of withdrawal of lumbar cerebrospinal fluid.

If the initial pressure, either in the supratentorial or the infratentorial fossa, is high, sudden withdrawal of fluid from the spinal subarachnoid space may precipitate a pressure cone—at the incisura in case the supratentorial pressure is highest and at the foramen magnum in case the subtentorial pressure is greatest. Pressure cones may result in immediate death or alarming increase of medullary symptoms. These accidents occur usually when the spinal fluid is withdrawn rapidly and in large amounts

and are uncommon in patients who have a reasonable chance of survival.

In the absence of increased intracranial pressure spinal puncture should be an exceedingly safe procedure. In my experience, the contra-indications to lumbar puncture are as follows: (1) Clinical evidence of high intracranial pressure; (2) clinical signs pointing to an expanding lesion in the posterior cranial fossa.

As a diagnostic procedure lumbar puncture is invaluable. When the clinical signs of increased intracranial pressure are equivocal, spinal manometric readings yield invaluable information. Diagnostic lumbar punctures are performed with a small needle, and not more than a few drops of fluid are lost while the pressure readings are being made. Also, observing a drop of the fluid gives some index as to the amount of blood it contains. While the number of red cells in the cerebrospinal fluid is not an accurate index to the degree of brain damage, it does indicate the degree of meningeal irritation which may be expected later in the convalescence. One word of warning—never perform the Queckenstedt test in the course of a diagnostic lumbar puncture on a patient with a craniocerebral injury. This maneuver increases the danger and yields no valuable information. This test is useful only when a spinal subarachnoid block is suspected.

As a therapeutic measure spinal puncture is of little or no value and may be harmful in acute head trauma. By therapeutic lumbar puncture is meant the drainage of cerebrospinal fluid in sufficient amount to change the volumetric relationships within the skull. The proponents of this method of treatment advise draining fluid until the spinal fluid pressure registers 50 to 100 mm. The theory that drainage promotes a more adequate blood supply to the brain is open to question. If an extradural, subdural, or intracerebral clot is suspected, and the diagnostic spinal puncture shows the pressure to be high, one should never be tempted to drain fluid to reduce pressure for a sudden fatality may result.

There comes a time, however, in many cases of head trauma when therapeutic lumbar punctures are exceedingly valuable. Blood in the cerebrospinal fluid is an irritant and, after hemorrhage has ceased and the contaminated blood is being absorbed, irritative meningitis is often a serious complication. Spinal drainage at this stage of meningeal irritation relieves symptoms dramatically. The procedure should be repeated once or twice daily until the fluid is almost free of color. There is considerable evidence to indicate that the late drainage of blood contaminated cerebrospinal fluid may be valuable in reducing post-traumatic sequelae.

HYPERTONIC SOLUTIONS

The routine use of hypertonic solutions in acute head trauma is a practice which cannot be condemned too severely. This form of would-be therapy has gained alarming popularity. When one inquires as to the treatment the patient has already received, too frequently there is the reply, "a spinal puncture and 100 c. c. of 50 per cent glucose intravenously." Fortunately, intravenous hypertonic glucose is tolerated remarkably well and probably very few patients gain or lose their lives because of it.

There is a distinct place, however, in head therapy for intravenous hypertonic solutions. They may be of great value in temporarily reducing intracranial pressure in desperately ill patients with surgical complications while the operating room is being prepared. Also, there is a relatively larger group of patients who on the second to fourth day of their illness develop meningeal irritation with high intracranial pressure. In this group, judicious use of hypertonic solutions is beneficial.

Care should be exercised in the selection of the hypertonic solution for each one possesses certain advantages and disadvantages. Hypertonic sodium chloride is perhaps the most efficient one of the group for immediate reduction of intracranial pressure. However, the action is short and the drug accumulates in all soft tissues of the body before it can be excreted and a secondary wave of edema results. Concen-

trated dextrose has a similar action with respect to the physical properties of the solution. Either of these drugs may be used to advantage when it is desirable to relieve suddenly the intracranial pressure (as when an extradural clot is awaiting surgery).

When a prolonged reduction of pressure is desired, hypertonic sucrose (50 per cent) possesses certain advantages. Sucrose is not metabolized; therefore, it is excreted as sucrose. It is excreted slowly, and the dehydrating effect is prolonged. It is not collected in the soft tissues; hence, there is no secondary wave of edema. This drug is not without danger for renal damage of severe grade has been demonstrated in patients who have received relatively small amounts of the solution.

Dehydration by magnesium sulphate administered by the gastrointestinal tract makes an already difficult nursing problem more difficult, and the therapeutic value no greater than sucrose given intravenously.

POSTURAL DRAINAGE

If the blood pressure is normal or higher than normal the head-up position is desirable for the first few hours to discourage venous bleeding. But if the conscious level is so low that the gag reflexes are diminished or abolished, saliva and secretions from the nasopharynx drain into the bronchial tree in an endless stream. When the patient's respirations become rapid and noisy and his color cyanotic, it is too often concluded that his lungs are filling up from a failing circulation. The unconscious patient from any cause seems to have an excess amount of mucoid and salivary secretions. Perhaps the over-secretion is due to vagal paresis; certainly, in all patients with vagal involvement this unusual flow of bronchial mucus seems to occur. The horizontal position, particularly if the patient is on his back, is almost as bad as the upright position.

A large accumulation of mucus (or blood) in the bronchial tree impedes free respiratory exchange and interferes with aeration of the circulating blood. As a consequence, anoxemia of all tissues of the body, including the brain, develops. When anoxemia is superimposed upon an already damaged brain, the impending tragedy is not long delayed. The customary use of the oxygen tent or oxygen tube is not effective if there is mechanical impediment to the free flow of gases in the respiratory passages.

Postural drainage is perhaps the most important single contribution to the subject of head trauma in the past decade. The foot of the bed is elevated by whatever means available until the plane of the bed forms an angle with the floor of not less than 30 degrees. The patient is placed on his abdomen or side so that the upper trachea, nasopharynx, and mouth are in a position to permit the drainage of secretions by force of gravity. Patients who are cyanotic from imperfect aeration and who have labored difficult respiration often breathe quietly and regain normal color within a few minutes after correct postural drainage is instituted. A deeply unconscious patient may be changed from side to side, always keeping the corner of the mouth in a dependent position. This head-down position apparently does not embarrass the general circulation.

OXYGEN THERAPY

Hyperthermia complicating trauma to the head has grave prognostic significance. It usually indicates serious damage to the brain stem or hypothalamus—but in many instances not severe enough to be compatible with recovery, provided the fever can be kept within reasonable bounds. Successful treatment of hyperthermia often requires the firm hand of the attending physician for the methods employed violate many time-honored traditions of the nursing profession.

When fever rises above 103 degrees F., all clothing and bed covers should be removed and the patient sponged with tepid water or alcohol. No covering should be replaced until the fever drops 2 degrees. If the body temperature rises in spite of these simple methods, sheets wrung from ice-cold

water should be applied and a strong breeze from an electric fan allowed to play over the entire body until the sheet is dry. Rectal temperatures should be recorded every fifteen minutes. If these efforts are applied boldly, the body temperature can be kept below a dangerous level until the issue is decided by other factors. Morphine in small doses (1-24 to 1-12 gr.) every two hours is also helpful in controlling extreme hyperthermia.

CEREBROSPINAL FLUID LEAKS

The recommended period of bed rest in strict recumbence for patients who have sustained brain injuries has in most neurosurgical clinics varied from two to three weeks. My own students have been taught for years that the recumbent position is most satisfactory in providing rest for the injured brain and that it reduces the probability of troublesome sequelae. Yet, in spite of prolonged bed rest the majority of my head trauma patients have complained of headache, dizziness, unsteadiness, and many ill-defined nervous symptoms. The "post-concussion syndrome" has almost become synonymous with "head trauma."

Recent personal experiences, prompted by reports from the English neurosurgeons, indicate that patients with injuries to the brain may be treated ambulatorily soon after full consciousness is regained without serious consequences. In fact, results thus far indicate that the post-concussion symptoms are observed less frequently and are less severe than would have been expected in a similar group of patients treated by prolonged bed rest. These observations are still too incomplete to justify preliminary analysis of data, but I am encouraged to continue for the present the following routine upon uncomplicated head trauma patients:

1. Upon regaining consciousness the head of the bed is elevated to permit semireclining or upright positions.

2. Bathroom privileges after 24 hours of consciousness.

3. Fully ambulatory as desired after 48 hours.

4. Discharge to duty after 10 days to three weeks depending upon the severity of the injury and completeness of recovery.

SUMMARY

Permit me to say that these remarks upon medical and nursing problems in head trauma have been taken from my personal experience; and, therefore, have sounded more didactic than they were intended. No doubt many of you have methods as good or better for each of the problems discussed. We cannot re-emphasize too often the importance of these non-operative methods for most certainly correct application of them are responsible for "turning the tables" favorably for many seriously injured patients.

LEPTOSPIROSIS

REPORT OF TWO CASES

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This is a report of the only two cases of leptospirosis ever correctly diagnosed, as provided by laboratory findings, in the history of Touro Infirmary, at New Orleans, Louisiana. The diagnoses were confirmed by studies at the National Institute of Health, Bethesda, Maryland. A clinical discussion of the condition produced by the leptospira will be followed by case presentations.

CLASSIFICATION

Any infection caused by the leptospira produces the condition known as leptospirosis. There are several types of leptospira, and the clinical picture may vary with the type of organism as follows:

1. *L. icterohemorrhagiae*—produces specific infection, known as Weil's disease (spirochetal jaundice)[1].

2. *L. canicola*

a) in Europe—produces no jaundice in dog or man

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b) in America—may produce jaundice in dog or man

3. *L. grippo-typhosa*—in South Eastern Europe; produces swamp fever (maladie de la vase, marsh fever)

4. *L. pyrogenes*—in Dutch East Indies

Other leptospira which are less common are:

5. *L. hebdomadis*—produces Japanese seven day fever

6. *L. autumnalis*—produces autumn or Hikijami fever.

HISTORY

The specific infection caused by the *Leptospira icterohemorrhagiae* has been described frequently in the literature, the first classic description having been made in 1886 by Weil. In 1918 the causative organism was classified by Noguchi[2]. In the United States the first case was reported by Wardsworth in 1922[3]; this was the result of an infection caused in the laboratory when a worker accidentally pricked her finger with the needle on a syringe filled with a virulent culture of *L. icterohemorrhagiae*. Seven days later the patient became violently ill and about two weeks later the causative organism was recovered by guinea pig inoculation with blood from the worker.

A little over 100 cases have been reported in the American literature, whereas from 1924 to 1937 there were 852 recognized cases in Holland.[4] There is no satisfactory explanation as to why it has been rarely diagnosed and more rarely proved in this country.

MODE OF INFECTION

The leptospira has been found in from 10 to 30 per cent of the wild rats all over the world. The organism lives in the animal's kidneys and is discharged in the urine. The water into which the organisms are excreted is infectious for a period of about three weeks. Man is infected either through abrasions of the skin, through the gastro-intestinal tract, or through the mucous membrane of the eye[5].

Most of the cases have been in persons whose occupations necessitated their working in wet places where rats have been. As a result, the disease has been discovered in sewer workers, fish cutters, miners, dock workers, restaurant workers and others exposed to rat-infested surroundings where moisture is present.

CLINICAL FEATURES

The clinical course of the disease may be divided into three stages, which run into each other without a sharp line of demarcation. The incubation period is about seven days.

First Stages: This may be called the septicemic stage; it lasts from two to nine days. During this period the leptospira is circulating in the blood stream and can be found in blood serum or plasma.

The onset of the disease is sudden, even in mild cases. There may be chills, fever, severe headache, and marked prostration. Abdominal muscle pain may be associated with vomiting, and the condition may be difficult to distinguish from an acute "surgical abdomen." A bloody sputum may be expectorated and actual pneumonia may be present.

Second Stage: This begins about the fifth or sixth day and at this time the patient's temperature may fall abruptly to or near normal and jaundice may appear. For this reason this has been called the "icteric" stage; but since jaundice only develops in about half of the cases[4, 5, 6] it is hardly justified. Those persons who are not jaundiced usually recover rapidly, unless they develop a severe meningitis. During this period the organisms disappear from the blood, appear in the urine, and specific agglutinins and lysins begin to appear in the blood. (Only one non-icteric case has been reported in this country[4].)

Jaundice is usually easily apparent when present; the icteric index has been reported as high as 325; the etiology of the jaundice is not definitely known. The liver is enlarged; the spleen is usually not palpable. The temperature ranges from 98 to 101 degrees F., but may go quite high. The pulse ranges from 100 to 130. White blood count may remain between 10,000 and 14,000,

although with a falling temperature and rising icterus it may go as high as 30,000. The red count falls some. Bile is found in the urine.

In fatal cases death occurs between the ninth and sixteenth day. The mortality rate is about 30 per cent[8]. In the Charity Hospital of New Orleans, out of 25 proved cases[9], there were four fatalities. The cause of death varies from renal, hepatic or cardiac failure; toxemia; or as a result of a terminal pneumonia.

Third Stage: This is the convalescent period of the disease and begins about the end of the second week. The temperature falls to normal and the jaundice, if present, begins to diminish. At the beginning of the third week the specific agglutinations reach a diagnostic titer. The convalescence period varies from a week to ten weeks or more; at any time during this interval the patient may have a relapse.

DIAGNOSIS

The clinical picture produced by the leptospira varies and in order to establish a diagnosis it is important to remember the stages of the disease. In the first week the organisms may be seen by darkfield examination of blood; or by inoculation of a guinea pig with blood intraperitoneally the disease may be reproduced and the causative organism may be recovered. It is imperative that the leptospira be differentiated from the *Treponema pallidum*. It may be seen in the spinal fluid.

In the second week the leptospira disappears from the blood stream and then may be found in the urine; the disease may be reproduced by inoculation of a suitable laboratory animal with urine from the patient[6].

Beginning with the third week the serum from the patient will agglutinate, the leptospira in dilutions that are diagnostic, i.e., in dilutions over 1:300[4]. The presence of antibodies for the typhoid group, brucella, or Wassermann antigen do not cause a false positive. The specific antibodies remain in the blood for years and the agglutinations will remain diagnostic, so that the preexistence of the disease in patients with a suspicious past history can be proved. Tiffany and his co-workers examined the blood from 1,351 people, and 10 had reactions positive to a titer of 1:320 or more; eight had a history consistent with leptospirosis, whereas only two had a correct diagnosis made during the illness[4].

TREATMENT

There are no drugs that are of value in the therapy of this condition; the arsphenamines and sulfonamides do not help. The treatment of choice is immune serum along with supportive measures. If possible, blood from a patient who has recently recovered from the disease is valuable, especially if given during the first week of the disease.

CASE REPORTS

Case 1. R. R., a white male, aged 16 years, was admitted September 19, 1942, and discharged October 22, 1942. On September 16, 1942, the patient suddenly began to have a frontal headache; this was followed by pains in his abdomen, neck and legs, especially in the calf muscles. He became nauseated and vomited several times; his temperature was elevated. On September 18, 1942, some "red spots" developed on his neck. The day of admission the patient had about fifteen loose and watery bowel movements; he complained of fever, headache, and "pain in the stomach." The patient had a sore throat and an occasional dry cough. No chest pain or hemoptysis was noticed. His appetite was very poor and he felt weak.

Past History: No serious illnesses or operations.

Social History: The patient lived in Hope Haven Boys' Home, in Marrero, Louisiana. He drank milk from cows on the place. The water came from the city. No unusual foods had been eaten. Another boy living in the same home had similar symptoms several days before, but was better. (This boy was never located.)

Physical Examination: On admission to the ward, at 8:20 p. m., the patient had the following pertinent findings: Temperature, 103.8 degrees F.; pulse, 130; respiration, 20; blood pressure, 108/56. The patient was a well-developed, well-nourished white male who appeared acutely ill. The pharynx and tonsils were reddened and inflamed. There was no cervical lymphadenopathy, but questionable rigidity of the neck muscles was present. The heart had a regular but rapid rhythm; no murmurs were heard; P2 is less than A2. Occasional crepitant rales were heard over the right base posteriorly. Over the entire abdomen there was slight muscle rigidity that was increased by palpation. The liver, spleen and kidneys were not felt. On the

skin of the extremities, chest and neck rose-colored small spots were noticed; they faded with pressure. The impressions of the admitting physician at the time were typhus vs. typhoid fever, and possible pneumonia. Routine orders were written at this time.

Course: The patient had a fairly comfortable night and the next morning (September 20) the urinalysis was within normal limits. The red blood count was 4,500,000 and the white count 7,700, with 88 neutrophiles, 11 lymphocytes and 1 monocyte. Blood, urine and stool cultures were taken; all later were reported negative. Febrile agglutinations (Typhosus "O", "H"; paratyph. A, B; brucella; proteus X 19) were negative 1:20. The temperature ranged from 102.6 degrees to 100.4 degrees. The patient had a "slight stomach ache" that night. The first signs of icterus were noted on September 21. The icteric index was found to be 40. The patient again had some abdominal pain and nausea with vomiting. A chest plate taken at this time showed the heart to be normal, but there were findings suggestive of a diffuse upper respiratory infection and basal pneumonitis. A flat plate of the abdomen was within normal limits. Since the temperature ranged from 98.2 to 101.2 degrees and the diagnosis of pneumonitis was made, sulfadiazine was started. An infusion was given. The sedimentation rate was 50 mm. per hour (Westergren). At this time agglutinations for *L. canicola* and *L. icterohemorrhagiae* were negative 1:10. Blood culture repeated (later reported negative). The next day (September 22) the patient felt better, but had a headache. Temperature fluctuated from 98.6 to 99.2 degrees. Sulfadiazine was discontinued. On this day the Wassermann (Kolmer, Kahn and Hinton) was reported negative. The urine had a trace of albumin, while the red blood count was 4,400,000 and the white blood count 6,500, with 73 neutrophiles, 2 eosinophiles, 24 lymphocytes and 1 monocyte. The sedimentation rate was 51 mm. per hour (Westergren). On September 23 the temperature decreased to normal and then rose to 100.2 degrees. Another infusion was given, because the patient was quite nauseated and vomited nearly everything he had taken by mouth. A cephalin flocculation test taken at this time was 3 plus in 24 hours and 4 plus in 48 hours. The erythrocyte fragility was found to be normal. The patient continued to improve and had only slight elevation of his temperature for the next few days. The cephalin flocculation on September 25 was 2 plus in 24 hours and 4 plus in 48 hours. The icterus index was 50 on September 28; at this time febrile agglutinations were negative 1:20, but positive for *L. canicola* 1:100 (negative 1:1000) and negative for *L. icterohemorrhagiae* 1:10. No spirochetes were seen on darkfield examination of urine on September 29. For the first time organisms resembling leptospira were seen on darkfield examination of blood on September 30; this was repeated on several occasions and on October 10 they were seen for the last time. Guinea pigs inoculated with whole blood and urine on September 30 failed to show any lesions grossly or microscopically. No organisms were ever seen in the urine. On October 5 and 9 agglutinations for *L. canicola* and *L. icterohermorrhagiae* were both positive 1:100. The patient was afebrile from October 13 until he left the hospital October 22. He then had no complaints and felt fine. His icterus index at this time was 15. Agglutinations on serum submitted on October 22, 1942, to the National Institute of Health at Bethesda, Maryland were reported as follows: positive 1:1,000,000 for *L. icterohemorrhagiae*, positive 1:1,000 for *L. canicola*. The patient was next seen in the Out-Patient Department on March 25, 1943. At this time he had no complaints and was feeling fine. The following laboratory investigations were performed: red blood count—4,740,000, 95 per cent hemoglobin (14.7 gm.); white blood count—6,500, 57 neutrophiles, 4 eosinophiles, 39 lymphocytes. Wassermann (Kolmer, Kahn and Hinton) negative. Cephalin flocculation—2 plus in 24 hours and 2 plus in 48 hours. Urinalysis within normal limits. Agglutinations on serum submitted on March 25, 1943, to the National Institute of Health were reported as positive 1:1,000 for *L. icterohemorrhagiae* and positive 1:10 for *L. canicola*.

Case 2. B. B., a white male, aged 14 years, was admitted on September 27, 1942, and discharged on October 15, 1942. Beginning September 26, the patient had a frontal headache that was preceded by dizziness and "pain in the eyes." This was followed by generalized "stomach ache" but no nausea or vomiting. For the previous few days the patient had a "cold" with a non-productive cough; he had general malaise and anorexia. On the morning of September 27 the patient vomited while at church; he had no nausea. He returned home and went to bed. Then he had a chill and fever. He vomited again in the afternoon and was then brought to Touro where his temperature was found to be 104 degrees F.

Past History: No serious illnesses or operations.

Social History: Same as that for case 1, as both boys lived in the Hope Haven Boys' Home.

Course: On admission to the hospital at 3:30 p. m. the patient appeared acutely ill. His temperature was 104.8 degrees F. and pulse was 100. He was well-developed and well-nourished. There was a slight conjunctivitis present. The throat was diffusely inflamed. The breath sounds were roughened, but no rales were heard. The heart sounds were normal. The area over the liver was tender; the spleen was not palpated. There was some generalized tenderness over the entire abdomen. An x-ray of the chest, taken on the way to the ward, did not show any findings which would warrant a diagnosis of pneumonia. An infusion was given. The red blood count was 5,200,000 and the white

blood count was 10,550, with 69 neutrophiles, 1 eosinophile, 1 basophile, 26 lymphocytes and 3 monocytes; the count was repeated the next morning with about the same findings. No malaria parasites were seen. The urinalysis was within normal limits. On the night of September 27 the patient's temperature fell to 99.6 degrees F., but early the next morning it rose to 106 degrees F. After this, for the next few days, it fluctuated between 98 and 99 degrees. An x-ray of the chest taken on September 28 was reported suggestive of a widespread interstitial pneumonitis without gross consolidation; however, since the temperature was about normal, no specific therapy was administered. The main complaint at this time was headache. The Wassermann was negative. Blood culture, stool culture and examination, febrile agglutinations and those for *L. icterohemorrhagiae* and *L. canicola* (September 29) were negative. The sedimentation rate was 21 mm. per hour (Westergren). On October 1 the patient's temperature rose to 104.8 degrees F. and he had a chill. He then had a pain in his right eye that had kept him awake most of the night. Another chest plate was ordered and later reported as being quite similar to the film taken on September 28. A blood culture taken this week was later reported negative. A white blood count showed 8,400 cells, with 81 neutrophiles, 5 eosinophiles, 1 basophile, 12 lymphocytes, and 1 monocyte. Sulfadiazine was started, one gram every 4 hours, and was continued for five days, with 24 grams of the drug being given. The patient was seen in consultation by the ophthalmologist, who reported a negative ocular examination; the fundi were normal. An ear, nose and throat consultant failed to find any pathology. However, since the patient lived in the same home with R. R. (case 1), agglutinations for the leptospira were frequently repeated, in spite of the fact that the patient never became jaundiced and was afebrile from October 2 until he was discharged. On October 5 the agglutinations for *L. canicola* and *L. icterohemorrhagiae* were both positive 1:10; on October 8, 9 and 12 the reactions were positive for both in dilutions of 1:100. Febrile agglutinations on October 12 were negative. No organisms were ever seen on darkfield examination of the urine or blood. The patient never appeared jaundiced and on October 12 the icterus index was 4. Serum sent to the National Institute of Health on October 17 was reported as follows: positive 1:100,000 for *L. icterohemorrhagiae* and positive 1:10 for *L. canicola*. The patient was next seen in the Out-Patient Department on April 13, 1943, at which time the physical examination revealed no abnormal findings, and there were no complaints. The following laboratory work was performed: Urinalysis within normal limits; red blood count 4,660,000, 71 per cent hemoglobin (11.2 gms.), white blood count 5,500, with 65 neutrophiles, 4 eosinophiles, 29 lymphocytes, 2 monocytes; cephalin flocculation was 3 plus in 24 hours. The febrile agglutinations were negative and those for *L. icterohemorrhagiae* and *L. canicola* were both negative 1:10. Serum sent to the National Institute of Health on April 13 was reported as being positive 1:1,100 for *L. icterohemorrhagiae* and positive 1:100 for *L. canicola*.

SUMMARY

These two cases have been presented in detail for the purpose of comparing different clinical syndromes produced by the leptospira. In both cases the causative organism was more than likely the *Leptospira icterohemorrhagiae*.

Emphasis is to be placed on the fact that the clinical syndrome should be referred to as "leptospirosis" and no classic name applied, because it may be misleading. This is especially true when referring to this syndrome with the term "jaundice" in the name, because, as has been pointed out, only about half of the cases are ever jaundiced. Also, it may be misleading to use the term "Weil's disease," because this refers to a specific disease that is caused by the *Leptospira icterohemorrhagiae* and jaundice is expected to be present in the classic case.

Finally, it is to be emphasized that the diagnosis may be made only after careful and thorough laboratory investigation. Because this has not been thoroughly done, many cases have never been diagnosed.

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URTICARIA PRODUCED BY POISONOUS CATERPILLARS

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Urticaria due to members of the Lepidoptera order is of importance to medical science; especially urticaria caused by the caterpillar, an occasional epidemic of which brings the subject to the attention of the profession and laymen alike. However, if one were to judge by the number of cases reported in the literature, it would seem that such injuries were rare. Nevertheless, let us examine the historical side of this subject and learn when such cases were first reported, by whom and where.

The credit for being the first to report on the subject goes to Pagenstecher, who, in 1883 at the Congress of Heidelberg, presented preparations of a conjunctiva and an iris covered with lesions caused by caterpillar hairs. The nodules bore a great similarity to tuberculous follicles. Soemisch, following Pagenstecher, was the first to name ocular lesions caused by caterpillar hairs—*Ophthalmia nodosa*.

Closely upon Pagenstecher's observations came those of Wagenmann in 1890, Borel in 1891, and Kruger and Becker in 1892. In 1894 Hilleman became interested in the subject and recalled ten previously published cases, to which he added another dealing with direct contact of the caterpillar and the eye of the patient. It remained for Packard in 1894 to make the first step toward explanation of urticaria.

Just after Hillman's report there appeared those of Elschinig and of Lawford in 1895; then a case from Natans in Russia in 1897. Interest in the subject was rising and now and then a case appeared.

Valude, in 1905, presented a very interesting case in which vision was totally inhibited for three days, and quite bad for about three weeks. The eye was red, swollen, and tumified, and the inflammation persisted several months. Upon observation the tiny caterpillar hairs were found.

Two cases, so-called ophthalmia nodosa by their author, were caused by a bee sting and a grasshopper's antennae.

Nineteen hundred and eight, 1910, 1912, 1917, 1918 brought more cases with special attention to the migration of the hairs and the persistence of pain until the hairs were removed.

Macotty in 1922 reported a case in which not only the eye but the eyelids and the skin of the forehead were affected. He showed the remarkable vibratility of the hairs, even through resistant tissue; for those hairs on the forehead penetrated as deep as the periosteum of the frontal bone.

In a case reported by Krausse in 1925 several hairs were removed, but others, lost sight of, caused a recurrence of the infection seven years later.

West in 1931 studied cases affected by the caterpillar, Euproctis chrysorrhea. He claimed the infection was due, not only to the foreign body in the eye, but also to a toxin borne on the hairs. However, after admitting that the toxin referred to was readily soluble and easily neutralized by the organism, the author was forced to agree with his predecessors that the mechanical action of the hairs themselves was responsible for the long persistence of the irritation.

PATHOGENESIS

The caterpillars causing the majority of urticaria in the United States can be found among the following list, which is taken from Matheson:

Megalopygidae:

- Megalopyge crispata (Flannel moths); Northern United States.
- Megalopyge opercularis (Puss caterpillars); Southern United States.
- Megalopyge pyxidifera (Flannel moth); Southern United States.
- Norape ovina (Cerama Cretata); United States. (As far as known all caterpillars of this family possess urticating hairs and the species is numerous in South America).

Eucleidae (Limacodidae):

- Sibine stimulea (Saddle-back caterpillars); United States.
- Parasa chloris; United States.

Parasa indetermina; United States.
Phobetron pitchicium; United States.
Adoneta spinuloides; United States.
(Numerous species in tropical regions of both hemispheres possess urticating properties of varying intensities).

Lymantriidae (Liparidae):
E. Phaeorrhea (Brown-tail moth); Europe and United States.

Arctiidae:
Euchaetias egle; United States.

Noctuidae:
Apatela populi, and A. oblinata; United States.
Catocala sp.; United States. (Effects from the larvae probably very insignificant except on the most delicate skin).

Saturniidae:
Automeris io. (The Io moth); United States.
Hemileuca mais; United States.
Hemileuca lucina; United States.
H. oliviae and H. nevadensis; Western United States.
Pseudo eglanterina and P. Hera; Western United States.

During the summer and early spring these caterpillars are found in great numbers on the particular leaves they are adapted to—usually trees. In certain parts of Texas these urticating caterpillars were so numerous that they were causing the death of trees.

It has been stated that epidemics of urticaria have followed the consumption of water from a well over-hung by a tree infested with caterpillars. Others have stated that these larvae are able to throw off spines when one comes near them. Wagenmann attributes an extensive epidemic of nodula conjunctivitis due to the transportation of hairs by the wind. The Euproctis chrysorrhea or brown tail moth is the greatest offender of this group. There is one report of a death due to the inhalation of hairs.

The most troublesome of these are the larvae of Euproctis chrysorrhea (brown tail moth), Lagba crispata, Hemileuca maia (buck moth), Sibine stimulea (saddle back), Automeris io (Io moth). These larvae are toxic from the moment they hatch (Gilmer).

It would be interesting to establish here a definition of toxic animal. Biologically one may designate an animal as poisonous only when this toxicity represents a trait of a given type of animal; in other words, when such poison is periodically developed in his body. These genuinely poisonous animals may be divided into two subgroups: (1) the actively poisonous animals, the toxicity of which is dependent on an anatomically defined apparatus wherein the poison is contained, and (2) the passively poisonous animals, the toxicity of which is the sequel of the chemical make-up of their various tissues and organs. The lepidoptera-caterpillars belong to the group of actively poisonous animals in that their toxicity has been proved to depend on the effect of a poison apparatus, the irritating hair.

ETIOLOGY

Since the subject, urtication caused by caterpillars, was thought of, the exact mode of causing the urtication has rested between several conflicting schools: (1) due to the hair itself (mechanical); (2) due to toxin glands; (3) due to combination of above ideas. It seems that each suceeeding attack is more severe. This makes one think there may be an allergic mechanism at work.

These facts are known and seem to be confirmed by men working in different laboratories: (1) Handling droppings from the caterpillar will cause urticaria; (2) cocoon inhabited by urticating caterpillar has given rise to typical skin reaction as associated with caterpillars; (3) moths at times will cause urticaria; (4) these urticating caterpillars possess two distinct kinds of hairs. The first three can be understood by explaining the last point; if the hairs are responsible then the droppings, the cocoon, and the moths also will carry some of the offending hairs. Since the caterpillars are covered with two distinct kinds

of hair it would be well to know how they differ.

The following table is a comparison of their qualities:

	Long Hairs	Short Hairs
Number	12-30	8-10
Length	5 mm-7mm	2 mm-3mm
Thickness	0.2 mm-0.5 mm	0.5 mm-1.75 mm.
Shape	Uniform	Serrated or barbed
Compressability	None	Yes
Pointing direction	Changeable	Permanent

These short hairs are well hidden by the long ones and are located near the apex of the papillae. Experiment proves them difficult to dislodge in comparison to the long ones; although Kephart states the contrary. These tubercles covered with toxic hairs are so located that when the animal is irritated he can arch his body and bring this defense mechanism into contact with the offender.

Careful examination of a forceps and glass rod after passing them over the hair did not reveal any hair on them. The short hairs may have various shapes but are markedly irregular in outline. The tips are angulated or possess several barbs and are easily broken off from the shaft. When these tips are broken off while observing them under the microscope and binocular (living caterpillars being used) no exudate was ever observed to ooze out of the tips.

That the hair is responsible for the disease and not the actual biting of the caterpillar can be proved by handling the droppings and emptied cocoon; deliberate contact with the hair has given rise to typical urticaria. To identify which hair is responsible deliberate irritation of the skin with both hairs has been tried; it is unanimously conceded that the short ones are responsible.

HISTOLOGY OF SHORT HAIRS

There have been few thorough investigations of the histology of the venom mechanism, and there is a great deal of confusion and disagreement among research workers. To a great extent the confusion seems to be arising from the fact that these workers are looking for something they think exists instead of interpreting what they find.

When Packard (1884) began delving into the question of histology, he demonstrated that in the base of the short hair of the Logoa crispata is a cell to which he attributed the production of toxin. A few years later Inginitsky studied the Ochneria manacha and demonstrated the presence of two cells connected to the toxic hair. One cell is for the production of hair, and later becomes a vestigial organ; the second persists and remains connected to the base of the hair. This cell he says is the toxogenic cell. These developments were traced through the embryonic stage.

Kephart concluded from sections of the brown tail moth that the hypodermis is found to be greatly thickened in the region of the subdorsal and lateral tubercles. The hair is the result of out-growth like that of human development. However, the base of the shaft is hollow. The poisonous cells are said to be beneath these hollowed portions and crowded together. These may be groups of concentrated cells supplying the entire tubercle; that is, from a common pore from the toxogenic cells there is a division of the duct so that each papillae is reached through the same pore canal, and sends branches to each hair on the papillae.

The hypodermis is composed of two layers of cells—a compact lower layer of small cells with dark staining nucleus and a small amount of cytoplasm. The upper row is composed of large cells that have large vesicular nuclei. It is this row of cells that lie beneath the hollow portion of the hair and sends pores to each papillae and then to each hair—a cell for each hair. These are apparently the hair forming cells or trichogenic cells. The first row does not send filaments to every cell as the second row. Since not all hairs are toxic, this may indicate that the first row is not trichogenous but toxogenous.

Foot, working with Megalopyge Opercularis, finds the seta to be hollow and with its tip broken, the opening being plugged with a mass of pigment. The base of the shaft is expanded into a shell. At the base of the shell there are two nuclei with much the same staining properties as the ex-

panded structure. The function of these cells has not been determined, but because of their similarity, they are said to be associated with seta root. Leading from this structure downward there is an indefinite staining structure not found in connection with all cells.

Just at the construction of the base of the shaft, Foot finds a diaphragm which is traversed by a duct from the contents of the seta shell—called theca or poison sac. The sac is thinly walled and on its surface sparingly distributed are a few flattened nuclei with no definite cellular position. As the duct ascends to the top of the shaft it becomes thin and very difficult to demonstrate.

Connected with the hair root through upward spiraling ducts are "gland like organs"; this simulates the sweat glands of the human. They never connect with ornamental hairs but occasionally with a poison seta. Foot believes that they might be toxogenic and transmit toxin to the theca and then atrophy occurs. If this is so then why does not all poison plumage have such connective glands? Villard believes that all poison seta have such connecting glands which first produce the hair (trichogenous), later secrete toxin (toxogenous).

There is no defnite statement made by Foot as to whether he has been able to show a pore at the distal end. However, he says the one examined was plugged with pigment; this may have resulted from a fracture.

TOXICOLOGY

Concerning this phase of the study of urticating caterpillars it may be said that very little or nothing is known; although some workers contend that certain facts have been established.

Kephart published some facts which he observed; however, it was not possible to duplicate them. He observed that the introduction of toxic hair into the blood would cause the crenation of red blood cells first into coarse particles, leaving only the sphere through which light is refracted. Other hair and foreign bodies do not cause such reactions.

In twenty attempts I could not observe this phenomenon regardless of method employed. Citrated blood was placed on a slide in focus, then the hair was introduced. This was observed for ten minutes and longer intervals; then fresh blood was used. The blood was placed on a cover slip surrounded by vaseline and a hair was placed on it. This was placed quickly down on a slide. Defibrinated blood was used as in the first experiment. In neither of the above was the phenomenon of gradual crenation observed.

CONCLUSION

Any conclusion drawn as to the method by which these larvae cause urticaria, except as acting as a foreign body, would be at the present time an assumption.

The so-called toxic hair when introduced into blood does not cause crenation of the cells.

The hairs are difficult to dislodge.

At no time was there observed any exudate from the tip of the broken hair.

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THE PHYSICIAN'S ROLE IN INDUSTRIAL HYGIENE*

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The physician on the Federal level, on the State level, in industry, and in private practice all bear a share in the responsibility of keeping the worker healthy and on the job. Theirs is the knowledge that can interpret health in terms of industrial health, that can show the relation between the physical well-being of workers and the number of finished products rolling off the assembly line. The role is vital because keeping workers healthy and on the job means that our fighting forces will be supplied with the arms and ammunition they need. And keeping workers healthy and on the job depends upon prevention of illness as well as medical care itself. It means preventing the common respiratory infections as well as bandaging the smashed thumb.

To prevent illness and accidents in industry, as well as to provide for medical care in the face of rapidly expanding production, our industries everywhere need more full-time and more part-time industrial physicians. In very few of the small plants are any medical services offered. Even part-time industrial physicians and nurses are the exception—not the rule.

A preliminary study of industrial hygiene problems in 15 States made in 1939 showed that only 15.5 per cent of the workers in 16,803 plants surveyed in these 15 States had access to a full-time plant physician. A part-time physician served 22.3 per cent of the workers. To 33.3 per cent a full-time nurse was available, and to 1.5 per cent a part-time nurse was available.

Perhaps the fact that two-thirds of the nation's industrial workers are employed in small plants where there is no medical service whatsoever was not so significant before the war when industry could recruit the "cream of the labor crop" from an ever plentiful supply bin of manpower. Perhaps it was natural under such conditions that management displayed little concern about the worker's private life—that is, his home, his habits, and his attitude towards his work. Labor, on its part, probably would have resented and labeled as paternalistic any effort by management to assist in dealing with these problems. Labor was more concerned with obtaining concessions regarding hours and wages, more liberal compensation laws, and seniority privileges. Few, if any, realized that some form of medical care, if only on a part-time basis, would more than pay for itself.

Nevertheless, for those of us who had been associated with this work over the last two decades, it was evident that great strides had been made and were being made in the improvement of the working environment. Perhaps the most significant advance was the establishment of governmental industrial hygiene services, to assist industry and the professions in a number of States. This, of course, was made possible by allocation of Federal funds by the Public Health Service, under the provisions of the Social Security Act.

Just about the time when we were becoming complacent about our achievements, along came the war and changed the entire picture in such a revolutionary manner that our previous difficulties now appear to have been slight. However, just as national crises entailing social and individual hardship usually result in progress which otherwise would have been retarded or not achieved at all, so we may expect that the influence of war upon industrial hygiene will result in great gains to all concerned.

I do not need to tell you about the influence of war on the medical service you yourselves are able to give your patients in civilian communities. The armed forces have drawn off so many of the medical men that in some communities medical care and public health service, as we knew it before the war, is almost an impossibility.

However, let us note that in arranging an orderly withdrawal of physicians, the Directing Board of the Procurement and

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Assignment Service of the War Manpower Commission has stated that "a physician should be considered essential to civilian public health interests and therefore, not available for military duty provided he comes within one of the two following categories:

"One: a full-time medical officer in charge of a health service of a governmental unit or administrative district, such as State, district, county, and city.

"Two: full-time heads or chiefs of administrative units within a health department. For example, tuberculosis, venereal diseases, maternal hygiene, infant care, epidemiology, or vital statistics."

The Board of the Procurement and Assignment Service has also ruled that physicians employed in industry are essential under certain conditions:

A full-time industrial physician employed by an industry which is manufacturing war materials exclusively or under priority ratings, is deemed essential. The same applies to a physician giving his full time to the industry, or 40 or more hours weekly, and has been so employed for at least two years, or one who is especially trained for industrial hygiene and is carrying on an acceptable health maintenance program.

The physician who is performing the functions of a medical director or department head or a specialist, or one who is the only physician employed, is also deemed essential. Assistant physicians who perform routine functions under direction, and are employed on a full-time basis are deemed essential until they can be replaced within a reasonable time, which is regarded as three to six months.

A physician serving a State industrial hygiene bureau on a full-time basis is also considered essential by the Board of the Procurement and Assignment Service. A part-time industrial physician, serving part-time two or more industries engaged exclusively in the manufacture of war materials or under priority ratings, is deemed essential if his total part-time service is the equivalent of 40 or more hours weekly. A physician who serves on call only is not deemed essential.

In addition to the necessity of keeping in industry the physicians who are already there, and the need for placing more physicians in war plants, we must make some provision for training industrial physicians. Many States have already set up two- and three-day institutes for special industrial hygiene training. Other States have organized three-week courses in industrial medicine.

Last year a group of dermatologists was given intensive training at the National Institute of Health under Dr. Louis Schwartz of our Division. This year a similar course was conducted by Dr. Schwartz in Chicago in cooperation with the American Medical Association.

Many State and local medical societies, through their committees on industrial health, have been active in the field of industrial health. These committees, affiliated with the Council on Industrial Health of the American Medical Association, are developing programs and setting up standards for medical practice in industry. For example, in one State, cooperative programs for the promotion of medical examinations in industry are being launched under the auspices of the Committee on Industrial Health of the State Medical Association, with similar committees in the local societies. In several other States, the committees on industrial health of the State medical societies, in cooperation with other health agencies, are sponsoring industrial hygiene institutes for private and industrial practitioners.

Some idea of the broadening scope of industrial medical practice may be found in a comparison of the pre-war functions of the industrial physician with the current concept of his duties and responsibilities.

As I have said before, there were not enough full-time medical directors in industry before the war. However, many part-time physicians were employed to come into plants for a half-day or an entire day each week to supervise the treatment and injuries incurred on the job.

In many plants, physicians were on call when accidents occurred, or when it was necessary to examine a person with a suspected occupational disease so as to advise management if compensable.

The pre-war concept of industrial medical service was concerned with one responsibility—emergency first aid treatment of injuries. Even in plants with complete medical service was this true. In few cases did the industrial physician concern himself with the common ailments which caused by far the largest amount of disabling illness.

With the coming of war, industry became conscious of conserving manpower chiefly because of its scarcity. Industry began to be aware that in terms of sick absenteeism the total health of the worker was more important than accidental injuries on the job.

Moreover, war has established a tremendous industrial development in areas not prepared to render any kind of medical service whatsoever. Many large plants literally rose up in cornfields. Boom towns arose with practically no medical service at all. Oftentimes towns of one and two thousand increased to 5,000 and 10,000 with no corresponding increase in the number of physicians. Everywhere, but especially in strategic industrial areas, medical care has become a necessity, for manpower must be conserved and production kept going.

The industrial medical service of a plant will usually be under the supervision of a medical director, assisted by nurses, dentists, technicians, clerks, and other part-time or full-time assistants. The medical service will give emergency care to employees who are injured or become ill on the job. It will be responsible for the continued treatment of employees suffering from occupational disease or accidents.

It is the responsibility of the medical service to inspect health and accident hazards in the shops in cooperation with the safety department, engineering department, or other unit, in order to prevent occupational disabilities.

An annual periodic examination of all employees and executives is one of the important functions of the medical service. It is intended to help them improve and maintain health through the discovery and correction of ailments of which they may not be aware but which later may impair their health seriously. Monthly physical examinations, including laboratory tests, should be made of workers who are exposed to poisonous materials on their jobs. Workers with unusual responsibilities, such as cranemen and hoistment, should be examined every six months.

The medical service will be responsible for the replacement examination of all workers. In cooperation with the personnel department, employment office, or other responsible unit, workmen should be placed in jobs best suited to their individual capacities. The objective of the preplacement examination is to utilize every available worker. In no instance should it be interpreted as a means of rejection of handicapped persons.

It is advisable for the preplacement examination to include complete medical and occupational history, complete physical examination, test of eyesight, blood pressure reading, laboratory analysis of urine, blood count, blood test for syphilis, x-ray picture of the chest to detect tuberculosis, especially of applicants whose physical examination suggests the possibility of tuberculosis. One-eyed workers, and many applicants with handicaps such as hernia, high blood pressure, defective vision or hearing, and crippling conditions should be employed and placed by the physicians and employment office at jobs they can do efficiently and safely. Applicants found infected with syphilis should be employed providing their disease is in a non-infectious stage, that they have no other disqualifying complications, and that they remain under treatment.

Maintaining and analyzing sickness records in order to know how, when, and where lost time due to disability occurs in the plant is another function of the medical service. A further important duty is to promote and take part in a health education program for employees and their families.

The medical service should also work out in advance detailed plans for handling large

numbers of seriously injured workers in event of disaster such as explosion, fire, air raid, or other enemy action. Such plans will include transferral of injured to hospitals where operating rooms, blood plasma and blood donors are available, first aid care of injured, and coordination of these plans with the safety department, guards, police, road patrols, and fire departments.

The industrial physician's "office" is the plant dispensary. The facilities which are available will vary from plant to plant. But to give adequate service the dispensary should be large enough to allow emergency treatment of the injured and sick, laboratory tests, and privacy in making physical examinations.

Every plant should have at least one first aid or stretcher crew, composed of interested employees. The crew may be trained by the medical service, a trained safety engineer, or a first aid teacher with a Red Cross certificate. The first aid crew works under the supervision of the medical service and the safety committee.

The plant medical service will be especially valuable in communities which are feeling the shortage of doctors and nurses. In a great many cases, the shortage is more apparent than real. People are likely to get upset and panicky when they discover that their family physician has gone to war or they cannot get a private duty nurse. Here the leadership of the industry can manifest itself, for very often this sense of deprivation can be relieved promptly if some responsible community organization immediately makes certain facts known to the public: first, what the local situation is; second, where alternate medical and nursing services may be found, and third, how to obtain the health, medical, and hospital service.

It is part of my job to travel extensively throughout the country in order to confer with the responsible agencies and organizations concerned with the conservation of manpower. Everywhere I have gone I have heard, as you have heard, one question: "What can *I* do about it?"

As physicians, whose training and skill are as basic to our civilization as the food and water which sustain us, there is a great deal you can do. To a certain extent that question is now being answered. The younger members of our profession are going into uniform. Many of the older physicians are returning to hospital and teaching staffs, and even to private practice. It is the middle-aged doctor on whom the greatest responsibility will rest. And yet, paradoxically, these middle-aged physicians are the ones who tell me most often that, as they read the daily headlines, they wish for the opportunity for a more concrete participation in the war.

Here is the answer to that question. It is an answer which will satisfy the physician who is the patriotic citizen, and a scientist spurred by the everlasting spirit of inquiry which reaches beyond Hippocrates back to antiquity. The opportunity which awaits every physician who is not in armed service is that he shall bring to the industrial plant the skills of his personal office; and, conversely, he must bring to his personal office the industrial knowledge of medicine for which there is so urgent a need.

The necessity for obtaining an accurate and detailed occupational history cannot be stressed too strongly. Many a conscientious physician has taken pains to record the detailed personal and past medical history of a patient, and neglected to get information concerning the patient's exposure to toxic materials in industry. Such an occupational inquiry might result in the need to investigate the patient's working environment, or at least to get information from plant officials on this point. As a single example of the advantage of a detailed occupational history, a recent investigation by the Public Health Service indicates that manganese poisoning may often be mistaken for multiple sclerosis or Parkinson's disease.

Whether you are a private practitioner or an industrial physician (and it seems both functions will have to merge, to meet the need) your prompt reports of the occurrence of occupational diseases are vital

to the efficient functioning of your official health bureaus. State-wide, careful attention to such reporting builds up a "backlog" of industrial epidemiologic data which may prevent the recurrence of such diseases.

Our country is indeed fortunate in having the largest reservoir of medical manpower among all the nations at war. The existence of this priceless resource does not by any means solve the acute medical care problems in many of our extra-cantonment and war industrial communities. The real problem lies in the *distribution* of our medical forces. For that reason, we are concerned with the removal of every obstacle that prevents or delays the relocation of physicians to communities where they are sorely needed. We are concerned also with the maximum utilization of the physician's services, saving him from unnecessary wear and tear, and helping him whenever possible through joint planning with other physicians and hospital groups. If necessary, new methods may have to be developed for maintaining necessary medical care services.

A realistic program of industrial hygiene must face the fact that 90 per cent of the disability among our war workers is due to nonindustrial accidents and illnesses. Therefore, in planning industrial health services several factors should be taken into account. For example, if a physician is needed in one plant, the community from which he is recruited must be considered in order that an essential physician not be withdrawn from general medical service in the civilian population. An in-plant health service should also make full use of community medical and health facilities. State and local public health services, including the tuberculosis and venereal disease control programs, are available to any industrial health program. The plant should also consider extending to the workers and their families, if possible, established group medical service plans, such as have been developed by many State and local medical societies. The Blue Cross* hospital insurance associations, established in numerous States and industrial communities, could also be promoted among the workers.

In the face of a dwindling supply of civilian physicians, it is unlikely that more than a fraction of the small plants will be able to obtain the full-time service of a physician. There are several plans now in operation whereby two or more small plants have obtained medical service by cooperative arrangements with State and local medical societies and governmental industrial hygiene services. The Public Health Service is cooperating with the American Medical Association in extending the adoption of such plans by small industries.

Your State industrial hygiene service can provide consultation on the toxicity of materials and processes, control of environmental hazards, occupational diseases, and general industrial illness; their laboratories are available for both clinical and environmental investigations. In every State where the policy has been adopted, the appointment of a physician from the State industrial hygiene bureau as a member of the State Medical Association's Committee on Industrial Health, has established a highly effective bridge of communications. And, in turn, this Committee makes an ideal liaison channel between the Association and the Bureau of Industrial Hygiene. Let me add that I mean the phrase "liaison channel" to refer to a "two-way street", with ideas, suggestions, and cooperative projects flowing in both directions.

The personal physician, for his part, can sharpen the tools at his command. He can and should make the use of accurate and detailed occupational histories standard practice. He can and should use the pre-employment examination as a *preplacement* method. He can and should increase his familiarity with occupational diseases, their causes and control, and give the reporting of such illness the same care he gives communicable disease.

The physician who efficiently handles a case of occupational disability saves a working skill as well as a man. Such medical

*Eleven million, seventy thousand members—January, 1943.

efficiency and such rescued skills, together, multiplied by thousands each month and transformed into endless numbers of war weapons, demonstate that the private medical practice can be as much a part of front-line combat as accurate artillery.

In the contest of war there is only a first prize. Whoever wins second prize, loses.

If the contribution the medical profession is making, and will be called upon to make, is any measure of America's all-out effort to win, victory is as sure as tomorrow's sunrise.

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THE PHYSIOLOGIC ACTION OF CORTICAL EXTRACTS AND DESOXYCORTICOSTERONE

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Ever since the description by Thomas Addison, in 1849, of the disease which bears his name, it has been appreciated that the adrenal cortex occupies a position vital to the normal metabolism of the body. But the exact nature of the hormones of the cortex and their modes of action is a subject that has been shrouded in mystery until relatively recently. Within the past two decades the bulk of our knowledge has developed concerning these hormones; one of them, desoxycorticosterone, has been synthesized and the crude extract has been separated into many fractions in the laboratories of Wintersteiner, Reichstein, Kendall, and others. As early as 1928, Rogoff and Stewart[1], and Hartman[2] were able to demonstrate that active adrenal cortical extracts were capable of prolonging life in adrenalectomized animals. Since then, many separate and distinct fractions have been isolated and proved to have individual and distinctly different effects. It is the purpose of this paper to discuss the nature of these effects.

HORMONES OF THE ADRENAL CORTEX

Kendall[3], in a recent article, lists eleven steroids of the corticosterone series of known formula. In addition to these, the adrenal cortex is known to contain desoxycorticosterone, progesterone, estrone, and certain androgens. Four of the corticosterone series deserve special mention. These have been designated by Kendall as A, B, E, and F; all four possess an oxygen atom on C-11, in contradistinction to desoxycorticosterone which does not. It is due to the ketol structure on C-17[4] that these cortical hormones are capable of maintaining life in animals after adrenalectomy. Progesterone possesses such a group and has been shown to be capable of prolonging life in these adrenalectomized animals[5].

In addition to these isolated fractions, there still remains in the mother liquors from which these extracts are made, an amorphous substance which retains the major portion of the total activity of the crude extract. The amorphous concentrate, though still impure, is adequate for an adrenalectomized dog when administered daily in the amount of 1 microgram per kilogram of body weight. To achieve the same result, fifteen times as much desoxycorticosterone, and 100 times as much corticosterone are required[6].

PHYSIOLOGIC ACTIONS OF THE ADRENAL CORTICAL HORMONES

The quantitative investigation of the physiologic response to the several compounds separated from the adrenal cortex clearly shows that no one compound can produce all of the human effects of the extract. For gluconeogenesis and the efficiency of muscle, corticosterone and compound E and their derivatives with oxygen on C-11 are necessary. For the most marked effect on the distribution of electrolytes, desoxycorticosterone is required, and for the maintenance of normal renal function the amorphous fraction is the most efficient[7].

Effect on water balance and electrolytes: Water constitutes about 70 per cent of the body weight and may be thought of as existing in three compartments[8]: (1) Intravascularly: the plasma water is about 5 per cent of body weight; (2) in the interstitial spaces: about 15 per cent of the body weight is represented here; (3) intracellularly: about 50 per cent. While the plasma water volume is the least of the three, the

body seems to have the highest regard for its constancy, and anything which tends to alter this volume is met by counteracting changes in the interstitial and intracellular compartment. These changes are to a large extent regulated by the hormones of the adrenal cortex.

Adrenalectomy renders the kidney incapable of retaining sodium and of excreting potassium. The cause of this is not known, but the fault does not lie exclusively with the kidney. Perhaps it is a manifestation of a generalized alteration in membrane permeability. At any rate, the sequence of events seems to be as follows: The increased excretion of sodium (usually in the form of sodium chloride) is accompanied by a diuresis (saline diuresis), as originally shown by Loeb.[9] The concentration of sodium and of chloride in the serum and in the interstitial fluid drops to low levels. This causes a decrease in the osmotic pressure of the extracellular fluid with the result that water flows into the cell. Water accumulates within the cell at the expense of the volume of fluid in the interstitial fluid and in the plasma.[10, 11, 12] This results in decreased blood volume. Cellular hydrops and hemoconcentration is the picture. Concomitantly, and probably due either to increase in the cell membrane permeability or to an attempt on the part of the cell to adjust to the depletion of extracellular electrolytes,[13] the intracellular potassium ion is released and rises to relatively high levels in the blood. The blood urea is increased due to damage to the cells and disintegration of cell proteins.[10] The water loss from the blood, both because of the diuresis and the diffusion into the cells, is not solely, however, a function of the electrolytic imbalance. This was shown by Swingle[14] who showed that in adrenalectomized dogs revived from severe deficiency but maintained on a low salt diet, the shift of the water from the cells into the blood stream could take place in the face of critically low serum sodium and chloride levels. Swingle regards control of membrane permeability an important function of the adrenal cortex, and is given support by the work of Menkin[15] who showed that the increase in membrane permeability caused by an inflammatory exudate (leukotoxin) could be reduced by adrenal cortical extracts (but not by desoxycorticosterone). Fine and Fischman[16] do not agree, but the value of their argument is somewhat attenuated by the fact that they draw their conclusions from experiments with the use of desoxycorticosterone rather than cortical extract. Transfused serum in animals suffering from acute adrenal insufficiency does not maintain the rise in blood pressure, but promptly leaks from the vascular system unless adrenal cortical extract is given.

Effect on carbohydrate metabolism: In addition to the above effects on water and electrolyte balance, profound changes in carbohydrate metabolism occur following adrenalectomy. There is a hypoglycemia and a marked depletion of liver glycogen. The exact mechanisms involved are not known. That the carbohydrate metabolism is dependent to some extent on the electrolytic and water balance is demonstrated by the fact that adrenalectomized animals can be maintained very satisfactorily, with regard to both the blood sugar and the liver glycogen, on a diet high in salt and water, even in the absence of adrenal cortical hormone (Anderson and Herring[17]). However, these animals are peculiarly susceptible to stress, and such things as mild tapping on a muscle or a sudden change in environmental temperature may precipitate hypoglycemia and shock.[18] There is a specific action of the adrenal cortical hormones on carbohydrate metabolism which is demonstrated in a number of ways. It is demonstrable that adrenal cortical extracts in the perfused liver will cause an increase in glycogen storage, and that an increased amount of glycogen is stored in the livers of normal fasting or partly depancreatectomized rats when cortical extract is administered.[19, 20] Adrenalectomized dogs show an increased sensitivity to insulin, as shown by Lewis;[21] normal dogs tolerate 0.25 units of insulin per kilogram of body weight, but severe convulsions and hypoglycemia occur when such a dose is given to adrenalectomized

animals. Any of the cortical hormones containing an oxygen attached to C-11 will protect the animals from hypoglycemia and convulsions.[22] Desoxycorticosterone affords no protection against insulin. Ingle has shown that severe hyperglycemia and glycosuria can be produced in rats fed a high carbohydrate diet; and adrenalectomy alleviates a pancreatic diabetes in experimental animals as evidenced by a decreased urinary nitrogen and glucose excretion.[30] Bits of evidence such as these leave no doubt but what there is a specific action of the adrenal cortical hormones on carbohydrate metabolism.

Growth: Adrenalectomy retards growth.[23] This is especially well shown in young animals. Paradoxically enough, however, certain of the adrenal hormones when administered to experimental animals actually retard growth. Corticosterone and compound E are particularly efficient in retarding growth of young animals; it is suggested that these results may be due to a depression of pituitary function. These corticosterone-like fractions are especially apt to cause atrophy of the thymus and of the adrenals of healthy young animals. The actual mechanism is not known. Desoxycorticosterone is growth promoting.[3]

Resistance to toxins: The lowered resistance of adrenalectomized animals to toxins may simply be a function of the lowered metabolic activity. The whole protective mechanism is less responsive after adrenalectomy. There is a striking depression in antibody formation. Blanchard,[24] Perla,[25] Rose[26] and others have shown that there is an increased sensitivity to histamine in adrenal insufficiency and that cortical extract will decrease sensitivity and lend protection. There is some evidence that the administration of adrenal cortical extract in some cases of toxemia will lessen its severity and supply the necessary protection lost by the damaged cortex. The effectiveness of the cortical extract in protecting animals against anaphylactic shock has led to its clinical use in the treatment of serum reactions, allergic reactions, and anaphylaxis. It also has been used in the treatment of pneumonia, diphtheria, scarlet fever, burns and shock.

Effect on lactation: Brownell and Hartman (1934) reported a lactation factor which permits female mother rats to lactate in the presence of adrenal insufficiency. 'Cortilactin' does not affect glycogenesis. Compound E is also effective in promoting lactation.[23]

Muscle metabolism: It has long been shown that adrenalectomized animals are incapable of prolonged muscular activity. Ingle[29] has tested the ability of the different steroids of the adrenal cortex to increase the efficiency of muscle activity in adrenalectomized animals and has found that desoxycorticosterone and related fractions do not improve the working capacity of muscles while the members of the corticosterone series are highly effective.[30] That this may be closely related to glucose metabolism is further indicated by the fact that the injection of glucose also increases to a considerable degree the performance of the muscles (Ingle and Lukens[29]). One method of biologic assay has been to tie a weight on to the tail of an adrenalectomized rat and place the animal in warm water to swim until exhausted. The endurance of the animal is said to be a fairly reliable method of determining the potency of the cortical hormones used.

Protein metabolism: The absolute increase in the carbohydrate stores of the fasted animal receiving adenal cortical extract is at the expense of the protein stores of the body. This is shown by the increased nitrogen excretion which is always adequate to account for the increase in carbohydrate. In addition, such animals lose more weight than untreated controls and there is no evidence that the elevation of the metabolic rate nor fat catabolism is of sufficient magnitude to account for the difference. Animals fed a high carbohydrate diet do not catabolize as much protein. Adrenalectomized animals are deficient in their ability to deaminate such amino acids as alanine and glutamic acid (Russell and Wilhelms[29]). It is suggested that one of the faults in carbohydrate metabolism lies in the inabil-

ity of the body to form carbohydrate from amino acids or their residues after deamination.[30]

Sulfur metabolism: The adrenal is capable of taking sulfur from the blood, and a rise in the sulfur content of the blood and skin follows adrenalectomy.[23] The adrenal is rich in glutathione and the content of this amino acid is increased following perfusion with glutamic acid and cystine.

Resistance to shock: Adrenalectomized animals are highly sensitive to hemorrhage, infection, water intoxication, cold, pain, histamine, and trauma, such as stripping the intestine or lightly tapping a muscle for a short time. These last procedures produce a rather profound shock. Animals can be protected from the shock of these procedures by the administration of adrenal cortical hormones.[31, 32] The prophylactic effect is much more marked than the therapeutic effect, and the corticosterone series are more effective than desoxycorticosterone. There is a distinct impression among many clinicians, and some evidence to support it, that the preoperative administration of cortical extract is of value in preventing or lessening shock from surgical trauma.[33] In Helfrich's series, the systolic blood pressure was 12 mm. higher on the average, and the pulse rate eight beats per minute slower, in the treated cases of patients subjected to similar operative trauma as opposed to a group receiving no cortical hormone preoperatively.[33] Desoxycorticosterone seems to be of less value (Besser[34]).

DESOXYCORTICOSTERONE COMPARISON OF THE EFFECT OF CORTICOSTERONE FRACTIONS AND THOSE OF DESOXYCORTICOSTERONE

Desoxycorticosterone will restore the normal rate of growth to adrenalectomized young animals; it acts primarily on water balance and is without effect on carbohydrate metabolism; it is of little value in resistance to trauma, insulin, histamine, shock and toxins; it is effective in restoring kidney functions; it is effective in the treatment of Addison's disease; and it has been synthesized. Corticosterone fractions on the other hand inhibit growth, act primarily on carbohydrate metabolism, are capable of increasing the efficiency of skeletal muscle, and protect the animal against shocking procedures. Desoxycorticosterone acts slowly (in 6-24 hours) in relieving symptoms of early adrenal insufficiency and is without effect orally. Corticosterone restores animals with severe adrenal insufficiency in from one to six hours and is effective orally. Whole cortical extract produces marked glycogenesis in the liver; desoxycorticosterone does not. The latter is capable of causing hypertension and acute retention of salt and water in large doses; cortical extracts are less likely to cause hypertension or salt retention even in large doses.[36]

It is interesting that in Addison's disease, whether caused by tuberculosis of the adrenal cortex or atrophy, there is seldom seen marked changes in carbohydrate metabolism. Hypoglycemia is not a part of the picture.[22] It is advisable, however, in Addisonian crises to administer the whole cortical extract rather than desoxycorticosterone alone, as its action is more rapid and it comes nearer to constituting complete replacement therapy.

SUMMARY

The two most striking functions of the adrenal cortex are: (1) the maintenance of normal water and electrolyte balance, and (2) the regulation of carbohydrate metabolism. In the absence of adrenal cortical hormone the body loses salt and water; plasma potassium reaches high levels; cellular hydrops and hemoconcentration occur. The liver and muscles become depleted of their stores of glycogen and hypoglycemia in experimental animals deprived of their adrenals. The changes relative to water and salt metabolism may be alleviated by desoxycorticosterone; those relative to carbohydrate metabolism may be remedied by whole cortical extract or the corticosterone series (compounds A, B, E, and F of Kendall). Some of the differences between desoxycorticosterone and those fractions with an oxygen atom on C-11 are discussed.

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NEW ORLEANS
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THE WAGNER-MURRAY BILL

Senator Wagner has made the announcement that the bill which is known by his name and that of Senator Murray was introduced at the request of the C. I. O. and the A. F. of L. One wonders if these two labor organizations have any idea what they are demanding of the American people as a whole. One wonders if they have any appreciation of what a profound change would take place in medical practice in this country were the bill to become a law. One wonders furthermore if the leaders of organized labor would be willing to abide by the provisions of the law and if they wish to become taken care of by a federalized system of medical care.

Surgeon General Parran of the United States Public Health Service points out that the traditional policy of his department has been to work through grants-in-aid to the states. The service is not directly interested in the treatment of disease in the individual. Were the bill to become a law it would call upon the Public Health Service to set up a service for sickness which is not even directly related to the preventive services which are carried out largely under the direction of state health departments. The law calls for certain benefits which cannot possibly be carried out because of a lack of physical facilities, such as laboratories and hospitals which are notable by their absence in sparsely settled areas. Certainly medical care cannot be provided at the present time which would come under the provisions of the law, states Dr. Parran. Certainly if the titular head of Public Health work in this country finds real flaws in this proposed law, it is not to be wondered at that the medical man does find innumerable defects, unfairness and demagogic demands on the doctor which certainly these two labor organizations would resist, and probably successfully, if like demands were made upon them which would be in any way comparable to the sacrifices the doctor is asked to make in order to make possible the carrying out of the proposed pernicious bill.

THE ANNUAL MEETING

The announcement of the Executive Committee that this year an annual meeting would be held in New Orleans on April 24-26 has been received with gratification by members of the Louisiana State Medical Society. The medical profession of the state apparently is glad and pleased that the scientific meeting, which was discontinued on account of the war, will be resumed this year. The members of the State Medical Society to a man are working diligently and harder probably than ever in their lives. The exigencies of an active practice are

such that it becomes almost an impossibility with so many men in the service, for those who are so cheerfully and willingly substituting for our departed friends, to read, to study or to relax. A meeting this year will allow the members of the profession to learn what has been done and is going on in medical fields and medical practice. Furthermore, aside from the scientific features of the program, the opportunity will be afforded for the hard working physician to have a well earned and well deserved period of rest and relaxation.

It is earnestly hoped that the profession will realize that it can gain much by attendance at the annual meeting. It is probably the feeling of the Executive Committee, as well as those interested in the Society, that it is the duty of every man to attend not only for what he can get out of the meeting but also to show that we have a united, well organized body of doctors who stand together and who will be prepared to fight for their rights when and if war and post-war legislation is presented which will put the medical man in the category of a servant to the state.

HEMORRHAGE IN PULMONARY TUBERCULOSIS

The occurrence of hemoptysis is by no means always the result of tuberculosis but until it is proved otherwise it is wise to assume that the patient who has spitting of blood has pulmonary tuberculosis. Occasionally the blood may come from the nasopharynx and its site of origin be misinterpreted. It may come from the bronchi or lung itself, in such conditions as bronchiectasis, bronchiogenic carcinoma and lung abscess. Rheumatic heart disease with mitral stenosis so frequently causes an hemoptysis that many an individual with equivocal heart signs is diagnosed as having pulmonary tuberculosis and put under a regimen of treatment for this disease. Once in a while hemoptysis may be a very early or even the first symptom of tuberculosis. Under such circumstances the person who has hemoptysis is indeed most fortunate. As a rule, however, hemoptysis particularly if it is a large hemorrhage, indicates serious pulmonary involvement.

Recently Minor* has made a statistical study of the incidence of pulmonary hemorrhage in persons who had spat up at least 4 c.c. of blood. Roughly it was found that about 25 per cent of the patients he followed had hemoptysis sometime or another during the course of the disease. The hemorrhage amounted in quantity from 4 c.c. to 2000 c.c., the average being 150 c.c. Of the 220 persons who had hemoptysis, only 47 did not have roentgenologic evidence of a cavity. Eleven of these patients were found not to have tuberculosis. Eight of every ten of the patients with hemorrhage had positive sputum. In the great majority of instances the hemorrhage came on without any precipitating factor, such as physical exertion or chest trauma. Sometimes the hemorrhage occurred when the patients were asleep. In a few of the patients there was a history of something to excite hemorrhage. In ten of the female patients there was a relationship between hemorrhage and the menstrual period.

Minor points out that hemorrhage must not be lightly regarded. It may produce, if large, strangling and asphyxiation and even fatal blood loss. There is always a possibility existing that the blood may wash out a cavity which is filled with living organisms and spread the infection to other portions of the lung, bringing about tuberculous bronchopneumonia or massive caseous pneumonia.

*Minor, George R.: Haemorrhage in pulmonary tuberculosis, Am. Rev. Tuberc., 48:109, 1943.

ORGANIZATION SECTION

The Executive Committee dedicates this page to the members of the Louisiana State Medical Society, feeling that a proper discussion of salient issues will contribute to the understanding and fortification of our Society.

An informed profession should be a wise one.

1944 ANNUAL MEETING

The Executive Committee of the Louisiana State Medical Society was polled recently concerning its view for the Annual Meeting, which had been scheduled for the latter part of April, 1944. At the last meeting of the House of Delegates authorization was granted to the Executive Committee to make whatever decision they felt most feasible in regard to the Annual Meeting. Due consideratiton was given to present war conditions which have disrupted to a great extent the medical profession of our state. Many of our members are now in the armed forces. However, it was thought that those who are still here taking care of the civilian population would be interested in assembling for the purpose of gathering information. on war conditions, especially important matters in relation to post-war plans. With this idea motivating their consideration, it was decided to have a business and scientific program. The House of Delegates will meet on Monday, April 24; the scientific program to be held on Tuesday and Wednesday, April 25 and 26.

The scientific program, which is going to be an intensive one, will comprise sixteen papers. The special committee authorized by the House of Delegates met in conjunction with the Committee on Scientific Work and arranged for the distribution of papers under the various sub-sectional titles as follows:

MEDICINE AND ALLIED BRANCHES

Medicine and Therapeutics	2
Pediatrics	1
Nervous Diseases	1
Bacteriology and Pathology	1
Public Health and Sanitation	1
Gastro-enterology	1

SURGERY AND ALLIED BRANCHES

General Surgery	2
Gynecology	1
Obstetrics	1
Eye	1
Ear, Nose and Throat	1
Urology	1
Orthopedic Surgery	1
Radiology	1

It was planned further that there would be only one scientific gathering, obviating any confliction with the attendance at any one session. In other words, there will be only one scientific meeting hall, adequately serviced, where in a two-day period these sixteen papers will be presented. Those interested in presenting papers should communicate with the respective chairmen of sections, names of which appeared in our January issue.

Dr. Daniel J. Murphy is Chairman of the Arrangements Committee for the Annual Meeting. His address is 1430 Tulane Avenue, Room 105, New Orleans 13. Any one who is interested in any feature of the State Society meeting should communicate with him concerning details.

The Roosevelt Hotel will be the headquarters for the meeting. Dr. Murphy has requested that you make reservations at once, in order that hotel accommodations will not be unduly cramped. You should know that the utmost efforts will be made to get accommodations for all those desirous of attending. Also you should know that due to war conditions there may be some slight restrictions on accommodations compared with previous years.

The presidential address and annual oration will be delivered on Tuesday night, and Wednesday night will be reserved for some entertainment feature. Proper space will be allotted for adequate facilities for commercial exhibits. Very shortly we will be able to announce, through this section, the various committees that will work un-

der Dr. Murphy in the arrangement of details for the meeting. The regular program with full details, both scientific and otherwise, will be sent to every member two weeks before the meeting.

We will welcome inquiries concerning any features of the meeting. Your interest, cooperation and attendance to make this meeting go over in a big way are earnestly solicited. While the program is an experimental one the executive officers and committees, whose duty it is to arrange the meeting, expect to gather some important information as to the wishes of the profession for future meetings. After all they are trying to arrange the annual meeting to suit the needs and conveniences of our overtaxed doctors, so do lend them your fullest cooperation.

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LEGISLATIVE NEWS

It may be of interest to know that recently there was for consideration before the Senate of the United States H. R. 3598 appropriating $1,000,000 for the use of the Surgeon General of the United States Public Health Service. This was to be used for expenses incident to relocating physicians in critical areas where there is supposed to be a deficiency in medical care. Personnel was to be supplied from members of the Public Health Service. The application for such need would be made from a community or municipality to the board of health of the state, and after sufficient investigation appropriate recommendations would be made to the Public Health Service for such aid. The resolution, furthermore, would pay the relocated physician a salary of $250.00 a month for three months. The city or municipality was supposed to participate up to $100.00 in reimbursing the physician for expense in moving to such a critical area. The resolutions, however, did not pass in the above form.

Instead, $200,000 was appropriated; the locality or municipality which makes request for aid will participate twenty-five per cent in the relocation of the physician, and instead of using Public Health Service men these physicians will be selected by the state Committee on Procurement and Assignment from the civilian population. Furthermore, these physicians will be required to meet the qualifications of the state board of medical examiners in the state where they are relocated. It is interesting to note that appearing in favor of the original resolutions were members of our national Committee on Procurement and Assignment and officers of the American Medical Association. Thus we were very fortunate in not having the original resolution passed into law.

There are many vital bills now facing Congress concerning medical practice. We must be diligent and not let up in our activities trying to defeat these measures, remembering that Senate Bill 1161, known as the Wagner-Murray Socialized Medicine Bill, is still a formidable document for our defeat, and should retain at least for the present our serious concern.

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HOSPITAL STAFF TRANSACTIONS AND CLINICAL MEETINGS

AMERICAN FEDERATION FOR CLINICAL RESEARCH

The New Orleans section met December, 1943, at the Louisiana State University Medical Center and the Hutchinson Memorial Building of Tulane Medical School.

The following are abstracts of some of the presentations:

Heart Block: A Study of One Hundred Cases with Prolonged P-R Interval. (Robert Bruce Logue, Major, M. C., and James Fletcher Hanson, Major, M. C.—From the Cardiovascular Section, Medical Service, Lawson General Hospital, Atlanta, Ga.)

A study of 100 cases of heart attack with P-R intervals prolonged to .22 or above is reported. This study consists of a review of 6,732 electrocardiograms taken on 4,364 patients at the Lawson General Hospital or an incidence of 2.3 per cent. The diseases associated with block are tabulated. In 34 per cent of the cases there was no evidence of heart disease and no history of past or present disease which might reasonably be expected to be associated with a prolonged conduction time. The

effect of atropine in heart block is discussed with a study of 38 patients to whom atropine was administered intravenously. The normal range of P-R interval is discussed and the suggestion is made that an occasional normal person may have a prolonged P-R interval, perhaps associated with an individual variation of vagal tone.

Pathogenesis of Keloids with Clinical Applications in Medicine and Surgery. (Wallace Marshall, M. D.—Mobile, Alabama.)

This study demonstrates the role of tissue edema in the production of keloids. The paper describes the physiologic mechanisms which are involved. The peculiar anatomy of the skin is stressed. The proliferation of connective tissue is discussed with the formation of keloid growth. Original experiments are described which demonstrate that this process is at least semi-reversible. A short review of these principles is discussed along with the clinical application for the treatment of such entities as keloidosis which follows acne vulgaris and burns. The role of vasoconstriction in the healing process is reviewed in order to correlate these many facts and to stress that the same basic pathophysiologic events occur in these two fields with regard to the formation of keloids. The preventive phase of these studies is described, and the experimental control of keloidal formation in plastic surgery is discussed.

A Cardiovascular "Blackout" Test. (H. S. Mayerson.—From the Department of Physiology, School of Medicine, Tulane University of Louisiana, New Orleans.)

A test has been devised in which the blood pressure and pulse rates are determined before and after a standard amount of exercise with the subject in the upright position. The subjects are rested in the horizontal position until pulse rate and blood pressure readings are stabilized. They are then instructed to mount a bicycle ergometer to which supports have been added for the back and legs. These are adjusted so that the subject sits comfortably at an angle of between 60 and 75 degrees. No foot rest is provided, thus eliminating all weight bearing on the extremities and minimizing the amount of muscular movement. Determinations of blood pressure and pulse rate are made at two minute intervals for a total of 10 minutes with the subjects in the "upright" position. At the end of this period the leg supports are swung out of position and the subject instructed to begin work on the ergometer, pedaling at the rate of 50 revolutions per minute as set by a metronome. The amount of work done is adjusted to 2000 foot-pounds per minute. The exercise is continued for 10 minutes, at the end of which time the leg supports are quickly swung into place and the subject allowed to relax. Pulse rate and blood pressure determinations are resumed as quickly as possible and continued at one to two minute intervals for 15 minutes, except where syncope interrupts the test. Notes are made regarding the condition of the subject during the test, including the appearance of pallor, sweating, and yawning. He is also questioned regarding symptoms at the end of the test.

Fifty students in the School of Medicine have been repeatedly tested up to the present time. Twenty-seven showed signs or symptoms of syncope or actually fainted during the first test. This embarrassment of the cardiovascular system is related to the low level of systolic pressure, the changes in diastolic pressure and pulse rate being secondary compensatory manifestations. The amount of sleep, recent illnesses and amount of physical exercise influence the response. Because of the seeming correlation between susceptibility to fainting and ease of "blcking out" when pulling out of a dive, the test is proposed as a particularly suitable method of selecting pilots for combat flying.

The Evaluation of a New Oral Estrogen (Ethinyl Estradiol). (James E. Robertson, M. D.—Dallas, Texas.

The discovery of stilbestrol with its effective estromimetic action has made us all aware of the possibilities of effective substitution therapy by the oral route alone. The action of stilbestrol, however, has left many things to be desired, and the search has been continued for an orally effective estrogen which would not share the deficiencies of stilbestrol. By the linkage of an ethinyl group to the estradiol molecule the effectiveness of estradiol by mouth has been increased many times.

This preliminary report is based on nine months' study of a group of patients with ovarian failure. Some of these patients had severe menopausal symptoms which were useful for the evaluation of the drug. Others were evaluated chiefly by objective evidence of response obtained by the use of Shorr's stain on vaginal smears and by biopsy of the endometrium. The effectiveness of ethinyl estradiol in priming the endometrium for progesterone action was verified in several instances.

These studies revealed that the dosage of one-fiftieth milligram daily was usually effective in relieving menopausal flashes; only a few severe cases required one-twenty-fifth milligram for this result. A dosage of three-tenths milligram daily produced regeneration of atrophic endometria to a late proliferative stage and was effective in priming the endometrium to respond to progesterone.

Nausea was produced by the medication with as little as fifteen-hundreds milligram. In numerous instances, individuals unable to tolerate stilbestrol, because of nausea and vomiting or more rarely diarrhea, tolerated ethinyl estradiol.

I wish to express my thanks to Dr. Max Gilbert of Schering Corporation for the supply of ethinyl estradiol used in these studies.

The Habitus in Patients with Sickle Cell Anemia and in Those with Sicklemia. (Travis Winsor, M. D., and George E. Burch, M. D.—From the Department of Medicine, School of Medicine, Tulane University of Louisiana, New Orleans.)

While making certain observations on patients with sickle cell anemia it was observed that those with severe disease showed certain physical trends. The purpose of this study was to determine: (1) if there is a characteristic habitus in patients with active sickle cell anemia (anemia in the presence of depranocytes); (2) if there is a characteristic habitus in subjects with sicklemia (the presence of depranocytes in the absence of anemia), and (3) to determine what factors influence the body build in these patients.

Three methods of study were employed. The patients were (1) observed in the nude state; (2) photographs and roentgenograms were studied and, (3) standard anthropometric measurements were made. For each patient with sickle cell anemia or sicklemia, 10 normal subjects were observed and measured for comparison. Fifteen patients, six to 36 years of age, with active latent sickle cell anemia and four adults with sicklemia were studied.

The adult subjects with severe long standing disease showed a fairly characteristic body type. The stature was somewhat short and the body weight was markedly reduced. The width of the shoulders, chest, and hips was narrow which gave the patients a distinctly linear type of habitus. The hands were long and very narrow and may well be termed "spider hands." The tips of the fingers were thin and tapered and "parrot beaking" of the nails frequently present. Frank clubbing and cyanosis were not encountered. The foot shared in the quality of thinness and elongation. The arms were long and frequently reached almost to the knees. The legs also appeared long and the trunk short.

There was an increase in the lumbar and dorsal curvatures of the spine which gave the patient a "humpbacked" and "sway-backed" appearance. In one patient with severe lordosis there was flattening of the vertebral bodies which undoubtedly contributed to the decrease in the height of the trunk. A few of the adult patients had some evidence of hypogonadism evidenced by changes in the primary and secondary sexual characteristics.

In the children with active or latent sickle cell anemia, a deepening of the anterior-posterior diameter of the chest gave them a "hoop chested" appearance. The abdomen was sometimes markedly enlarged and protruded abruptly at the xiphoid process. The changes encountered in the children were less consistent as the disease process had been present for a relatively short length of time.

In the patients with sicklemia, no significant deviation from the normal was seen.

It may be said that there is a fairly characteristic "depranocytanemia type of habitus" which is usually present in adult patients with severe long standing disease. The habitus in children is variable and depends upon the duration and severity of the disease. The habitus in those with sicklemia is not abnormal. The factors influencing the body type, at least, are the anemia changes in the endocrine system, particularly the gonads, and the vascular pathology. The changes in the osseus system as seen in the alterations in the bodies of the spine and extremities are probably secondary.

TRANSACTIONS OF ORLEANS PARISH MEDICAL SOCIETY

CALENDAR OF MEETINGS

February 1, Eye, Ear, Nose and Throat Staff, 8 p. m.

February 2, Mercy Hospital Staff, 8 p. m.

February 3, Clinico - Pathological Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.
Executive Committee, Baptist Hospital, 8 p. m.

February 7, Board of Directors, Orleans Parish Medical Society, 8 p. m.

February 9, Clinico - Pathological Conference, Charity Hospital Morgue Amphitheater, 1:30 p. m.
Touro Infirmary Staff, 8 p. m.
Women's Auxiliary, Orleans Parish Medical Society, Orleans Club, 3 p. m.

February 14, Scientific Meeting, Orleans Parish Medical Society, 8 p. m.

February 15, Charity Hospital Medical Staff, 8 p. m.

February 16, Charity Hospital Surgical Staff, 8 p. m.

February 17, Clinico - Pathological Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.

February 18, I. C. R. R. Hospital Staff, 12:30 p. m.

February 21, Hotel Dieu Staff, 8 p. m.
Clinico - Pathological Conference, Baptist Hospital, 8 p. m.

February 22, Baptist Hospital Staff, 8 p. m.

February 23, Clinico - Pathological Conference, Charity Hospital Morgue Amphitheater, 1:30 p. m.
French Hospital Staff, 8 p. m.

February 24, Clinico - Pathological Conference, Touro Infirmary, 11:15 a. m. to 12:15 p. m.

February 25, L. S. U. Faculty Club, 8 p. m.
New Orleans Hospital Dispensary for Women and Children Staff, 8 p. m.

During the month of January the Society held two meetings; the annual installation meeting, and a regular scientific meeting. The installation meeting was held at the Jung Hotel. At the regular scientific meeting a symposium on tropical medicine, stressing the possible effects of tropical diseases on the people of the United States because of soldiers returning from the various battlefronts, was presented by Drs. Albert Miller, Arthur Judson Walker, Joseph D'Antoni, L. Everard Napier, Harry A. Senekjie and Ernest Carroll Faust.

Dr. Woodard D. Beacham was recently awarded a life membership in the American College of Surgeons for the most excellent medical reports presented by candidates for fellowship during 1943.

Dr. Julian Graubarth was recently re-appointed State Chairman for Louisiana of the American Academy of Pediatrics.

Dr. Julian Graubarth attended the regional meeting of the Southern Section of the American Academy of Pediatrics recently held in Cincinnati.

Dr. Henry D. Ogden recently returned from three weeks work in allergy at New York Post Graduate Medical School under Spain, Fuchs, Strauss, etc. While in New York Dr. Ogden attended a meeting of the Society for the Study of Asthma and Allied Conditions.

Dr. Robert A. Katz recently attended a meeting of the Mexican Gastroenterological Society.

Dr. R. J. Mailhes was recently installed as president of the Mercy Hospital staff. Other officers installed were: Dr. Charles Gelbke, vice-president; Dr. Gordon Johnson, secretary, and Dr. O. J. Burger, treasurer. Dr. W. G. Troescher was made a member of the staff.

DANIEL J. MURPHY, M. D.,
Secretary.

LOUISIANA STATE MEDICAL SOCIETY NEWS

CALENDAR

PARISH AND DISTRICT MEDICAL SOCIETY MEETINGS

Society	Date	Place
East Baton Rouge	Second Wednesday of every month	Baton Rouge
Morehouse	Second Tuesday of every month	Bastrop
Orleans	Second Monday of every month	New Orleans
Ouachita	First Thursday of every month	Monroe
Rapides	First Monday of every month	Alexandria
Sabine	First Wednesday of every month	
Second District	Third Thursday of every month	
Shreveport	First Tuesday of every month	Shreveport
Vernon	First Thursday of every month	

ATTENTION ALL SECRETARIES OF DISTRICT AND PARISH MEDICAL SOCIETIES

On account of the overworked condition of the medical practitioner at the present time, the journal will not repeat its request to the secretaries to send in accounts of their district or parish medical society meetings, but we still like to get these and some of the secretaries are cooperating most heartily. However, we are requesting that you put the New Orleans Medical and Surgical Journal down on your list of addresses and send the notices of all meetings to this office, so that it will be possible to publish a brief statement as to the meetings held by organized medicine throughout the state.

EAST BATON ROUGE PARISH MEDICAL SOCIETY

The following officers were recently elected by the East Baton Rouge Parish Medical Society for the year 1944: President, Dr. Henry C. Hatcher; Vice-President, Dr. Arthur D. Long; Secretary-Treasurer, Dr. Felix Boizelle; Delegates, Drs. F. U. Darby, H. Guy Riche, T. Jeff McHugh, U. S. Hargrove, and A. D. Long; all of Baton Rouge.

JEFFERSON DAVIS PARISH MEDICAL SOCIETY

At a recent meeting of the Jefferson Davis Parish Medical Society the following officers were elected for the year 1944: President, Dr. Morgan

Smith, Jennings; Vice-President, Dr. John McClure, Welsh; Secretary-Treasurer and Delegate, Dr. L. E. Shirley, Jennings.

OUACHITA PARISH MEDICAL SOCIETY

The Ouachita Parish Medical Society held a meeting recently at which the following officers were elected for the year 1944: President, Dr. Irma Jones; Vice-President, Dr. G. A. Varino; Secretary-Treasurer, Dr. Zelma Alden; Delegates, Drs. A. G. McHenry, D. I. Hirsch, and G. T. Gallaspy; all of Monroe.

CLAIBORNE PARISH MEDICAL SOCIETY

The newly elected officers for the year 1944 of the Claiborne Parish Medical Society are as follows: President, Dr. C. O. Wolff, Haynesville; Vice-President, Dr. E. B. Middleton, Homer; Secretary-Treasurer, Dr. M. J. Rivenbark, Haynesville; Delegate, Dr. J. W. Featherston, Homer.

CHARITY HOSPITAL

A meeting of the Medical Division of the New Orleans Charity Hospital Visiting Staff was held on January 18, 1944, in the Auditorium of the hospital. The following program was presented: Interpretation of Brain Waves, by Dr. Walker Thompson; Vacciniform Dermatitis of Kaposi, by Dr. E. M. Gropper, and Psychiatric Problems in a Child, by Dr. Joel Fleet.

BAPTIST HOSPITAL

The regular monthly clinical staff meeting of the Baptist Hospital of New Orleans was held on January 25, 1944, at 8 p. m. The program consisted of the following: Some Uses for Red Blood Cells, by Dr. J. W. Davenport; Postpartum Hemorrhage (moving picture); Death Report, discussed by Dr. W. H. Gillentine; election of officers for the coming year.

SIXTH ANNUAL CONGRESS ON INDUSTRIAL HEALTH

The sixth Annual Congress on Industrial Health, sponsored by the Council on Industrial Health of the American Medical Association, will be held Tuesday and Wednesday, February 15 and 16, at the Palmer House in Chicago. This meeting follows directly after that of the Congress on Medical Education and Licensure. Physicians and others interested in industrial health are cordially invited. There is no registration fee.

REFRESHER COURSE IN OTOLARYNGOLOGY

The Department of Otolaryngology of the University of Illinois College of Medicine announces its spring refresher course, to be held at the College in Chicago, March 20-25, 1944. The course will be largely didactic, but some clinical demonstrations have been included. It is intended primarily for specialists, who under existing conditions, are able to devote only a brief period to postgraduate review study. The fee is $50.00. Registration will be limited. In letter requesting application, state school and year of graduation; also give details concerning specialty training and experience. Address—Department of Otolaryngology, University of Illinois College of Medicine, 1853 West Polk Street, Chicago, Illinois.

UROLOGY AWARD

The American Urological Association offers an annual award "not to exceed $500" for an essay (or essays) on the result of some specific clinical or laboratory research in Urology. The amount of the prize is based on the merits of the work presented, and if the Committee on Scientific Research deem none of the offerings worthy, no award will be made. Competitors shall be limited to residents in urology in recognized hospitals and to urologists who have been in such specified practice for not more than five years. All interested should write the Secretary, for full particulars.

The selected essay (or essays) will appear on the program of the forthcoming meeting of the American Urological Association, June 19-June 22, 1944, Hotel Jefferson, St. Louis, Missouri.

Essays must be in the hands of the Secretary, Dr. Thomas D. Moore, 899 Madison Avenue, Memphis, Tennessee, on or before March 15, 1944.

AMERICAN COLLEGE OF SURGEONS

One-day war sessions will be held by the American College of Surgeons during March and April. On Monday, March 27, there will be a meeting in Jacksonville. The meeting held for the surgeons of Mississippi, Louisiana, western Tennessee and Alabama originally scheduled for Jackson, Mississippi, has been cancelled. Some other city in this area will probably be selected in the near future.

NEWS ITEMS

The Secretary-Treasurer, Dr. P. T. Talbot, on January 5 addressed the Rotarians of Houma on Senate Bill No. 1161 and federal socialization of medicine. This was quite a lively meeting and lots of interest was manifested by the group present.

Dr. Val H. Fuchs, President-elect of the State Society, addressed a joint meeting of the Kiwanis and Rotary Clubs of Hammond, Pontchatoula, Amite and Independence, in Hammond on January 18, on the Wagner-Murray-Dingell Bill No. 1161.

Dr. Robert A. Katz attended a meeting of the Mexican Gastroenterological Society on December

11, 1943. A symposium of papers on diseases of the esophagus was given. Dr. Ayala Gonzales, president of the society, presented a report on the successful resection of a tumor of the terminal esophagus with anastomosis to the stomach.

The many New Orleans friends of Dr. Walter Ovid McCammon have heard with deep regret of his death in Sicily while fighting with the American troops. Dr. McCammon was a graduate of Tulane in the class of 1935. He married a New Orleans girl. Prior to the time that he entered the Army he was at the Boston City Hospital in Boston.

The tenth annual meeting of the Mississippi Valley Medical Society will be held at the Pere Marquette Hotel, Peoria, Illinois, September 27 and 28.

The 1944 session of the National Conference on Medical Service will be held February 13 at the Palmer House in Chicago on the day preceding the Annual Congress on Medical Education and Licensure. This meeting comes at a critical time in the life of the nation and of medicine.

Major General James Carre Magee, Medical Corps, United States Army, retired, has been named executive officer of the information service of the division of medical sciences of the National Research Council, Professor Ross G. Harrison, chairman of the Council, announced here today. He will assume office as of December 1. Gen. Magee will devote full time to the organization of a central office in the National Research Council which will collect medical reports and records, widely dealing with military medical practice, civilian practice as affected by the war, medical education and research and the distribution of diseases. This material, so far as military necessities permit, will be made available by publications, summaries and notes.

In memory of Frederick Banting, discoverer of insulin, a Liberty ship was named for him. The ship was christened by Lady Banting in the Bethlehem-Fairfield Shipyard, Baltimore, on December 20, 1943.

HEALTH OF NEW ORLEANS

The Bureau of the Census, Department of Commerce, reported that for the week which ended December 18 there occurred in New Orleans 135 deaths, distributed 94 white, 41 colored, with 10 infant deaths. This is a reduction of 22 deaths as contrasted with the previous week. There was a tremendous increase in the number of deaths in the city in the week ending December 25, proving how lethal may be the existing epidemic of influenza. There were 229 deaths in the city as contrasted with the three-year average of the corresponding week of 146. One hundred and fifty-seven of these deaths occurred in the white population and 72 in the colored, with 14 infant deaths. A very large number of deaths taking place in the city continued in the succeeding week which came to a close January 1, 1944. There were 211 deaths, divided 153 white, 58 all others, 14 of the deaths being in children under one year of age. The year 1943 has not been as healthy a year as was the year of 1942. In this year there were 6,926 deaths as contrasted with 1943 when 7,706 New Orleanians expired. In other words there were 780 more deaths in the City of New Orleans in 1943 than in 1942. Part of this increase may be accounted for by the increase in population, but unfortunately this would not explain the deaths of 780 people. More than likely is it that 1942 was an exceptional year as is well known in its health record; 1943 has not been as healthy a year, and in the last two weeks of the year there were a large number of people dying from influenza and its complications. For the week which ended January 8 there were 186 deaths in the city, divided 127 white, 59 nonwhite. There were nine deaths in children under one year of age.

INFECTIOUS DISEASES IN LOUISIANA

The Louisiana State Board of Health reported for the week ending December 11 influenza with 85 cases, which record leads all other reportable diseases. Other diseases occurring in numbers greater than 10 include 38 cases of chickenpox, 20 of pulmonary tuberculosis, and 10 of bacillary dysentery. During this week there were four cases of malaria reported, three in Rapides Parish and one in Orleans. Four cases of typhus fever were listed and one of poliomyelitis. "Other diseases" not regularly listed include 47 cases of unclassified pneumonia. For the week which closed December 18 influenza again led the list with 58 cases, followed by 39 of pulmonary tuberculosis, 13 of malaria, and 10 of septic sore throat. There were reported also 21 cases of unclassified pneumonia. Twelve of the cases of malaria were reported from Jackson Parish. One case of poliomyelitis was discovered and strange to say one of smallpox. It is apparent that all cases of influenza are not being reported. However, the epidemic as prevalent at the present time has resulted in a marked increase in the number of reported cases, there being 148 listed in Xmas week and no other diseases being reported in numbers greater than 10 except 15 cases of German measles and 24 cases of unclassified pneumonia. Six cases of meningococcus meningitis were reported this week which presages considerable increase in the incidence of this disease.

CORRESPONDENCE

Dear Doctor:

There is a critical need for medical and surgical supplies that may lie hidden and forgotten in your office: Discarded or tarnished instruments . . . surplus drugs . . . vitamins . . . infant foods. Collected, packaged, sent to the Medical and Surgical Relief Committee, they can play a vital role in its program of medical relief for the armed and civilian forces of the United Nations.

Surgical instruments and medicines are sought after by physicians and pharmacists' mates of our Navy . . . are hungrily snatched by the medical corps of our Allies. The work of war-zone hospitals and welfare agencies is too often crippled by the lack of medical supplies. Community nurseries in this country, refugee camps abroad cry out for vitamins and baby foods for their ill-nourished charges.

Our committee has supplied over 900 sub-hunting and patrolling ships of the Navy with emergency medical kits; equipped battle-dressing stations on battleships, destroyers, and cruisers. The Committee's roll-call of medical requests—not one of which has been turned away—reads like a world geography: The Fighting French in North Africa and Tahiti; the Royal Norwegians in Canada and Iceland; the West Indies; South and Central Africa; China; India; Great Britain; Yugoslavia; Greece; Syria; Russia; Alaska and of course, the United States.

To meet the demands that pour into headquarters, the Committee needs all types of instruments, especially clamps, scalpels, forceps, and all kinds of drugs from iodine to sulfa products. By contributing what you can spare, you will help speed another shipment of sorely-needed medical aid.

Joseph Peter Hoguet, M. D.
Medical Director,
420 Lexington Ave.,
New York, N. Y.

WOMAN'S AUXILIARY

The following is a report of the work done by Legislative Chairman Mrs. W. R. Harwell of the Woman's Auxiliary to the Shreveport Medical Society. It is an outstanding report and should be of interest to other auxilaries.

The Wagner-Murray Bill, S.1161, has caused much concern among our members as it surely must have among the members of every other auxiliary. Our Legislative Chairman, Mrs. W. R. Harwell, has worked consistently and effectively for the education of the group as well as of the laity, stressing always the serious implications of the bill not only to the medical and its allied professions, but also to our whole system of free economic enterprise.

At our first meeting in the fall she presented the matter, having familiarized herself with all data then available, and she has since emphasized and re-emphasized the necessity for further self-education within the group. To this end she has distributed literature to the membership. Members have been urged to make themselves thoroughly conversant so as to be able to discuss the bill intelligently and propose its defeat concincingly. Furthermore, members were requested to write their senators and representatives. The Auxiliary as a body wrote its men in Washington, making known its feelings in the matter.

Mrs. Harwell has addressed groups interested in social legislation, and was successful in bringing the matter of the bill to the attention of the Fourth District, Louisiana Federation of Women's Clubs, thereby making it fairly certain that at least 1000 women in this part of the state will become aware of this piece of pending legislation. Our members have the feeling that every honest layman who is made cognizant of the bill and the dangers implied therein, will become an advocate for defeat of this piece of un-American legislation.

(Mrs. J. M.) Lucile L. Bodenheimer,
Publicity Chairman, Women's Auxiliary
to the Shreveport Medical Society.

Mrs. P. L. Perot, president of the Women's Auxiliary to the Ouachita Parish Medical society, presided over the luncheon table in the Butterfly Room of the Frances Hotel when the regular monthly luncheon was held in December. Mrs. Perot took this opportunity to deliver a message from Miss Myrtle Rodgers, president of the local League of Women Voters, requesting every member of the auxiliary to register without fail before December 18 so that they could vote in the coming election. A request was also made for cooperation in contacting all women voters.

Mrs. Perot introduced the guest speaker, Dr. J. E. Walsworth, who talked on the subject of "Socialized Medicine."

Mrs. A. G. McHenry, public relations chairman, at this time stated that letters had been mailed to thirty-seven women club presidents of Monroe and West Monroe containing information on the Wagner bill.

The Woman's Auxiliary of the Iberville Parish Medical Society had its first meeting December 9 and from the following report it was a big meeting and a most successful one.

The following report was rendered by the treasurer:

Hospital Fund	$373.68
Checking Accountant	487.96
Charity	61.03
Maintenance and Entertainment	141.11
Miscellaneous	96.11
Bond Fund	244.44

(Also six Series F Bonds at $74.00 have already been purchased and the $244.44

in the Bond Fund will be used in the January Bond Drive.)

Revenue from machine during the Auxiliary's inactive months was as follows:

May	$128.00
June	49:50
July	80.35
August	142.75
September	72.15
October	60.50
November	107.00
Total	$620.20

Disbursements were as follows:

Sept. 6, Flowers	$ 5.11
Sept. 14, 5 Series F Bonds	370.00
Oct. 5, Flowers	10.00
Oct. 8, Hygeia	4.70
Oct. 30, United War Relief	25.00
Total	$409.70

A letter from Mrs. Taquino, our president, was read in reference to the collection of discarded instruments for the Medical and Surgical Service kits. Dut to the smallness of our locality, very little could be accomplished by the collection of the muchly needed instruments so it was voted to send a check for $50.00 to the Medical and Surgical Relief Committee of America, 420 Lexington Ave, New York.

It was also moved and seconded to give the following organizations:

Indigent Widows Fund	$10.00
Anti-Tuberculosis	25.00
Iberville Parish Red Cross	35.00
Jane Todd	2.00
La. State Society for Crippled Children	25.00
Infantile Paralysis	10.00

The Layette Chairman was authorized to buy new layettes; one to be used in the summer and one in the winter.

It was a very busy meeting and a delightful social affair. Mrs. Levy extended an invitation to have the next meeting with her in January.

We want to thank the Iberville Parish for this fine report and offer our sincere congratulations and hope for the continuation of such work during the coming year.

Mrs. M. C. Wiginton,
Chairman, Press and Publicity.

BOOK REVIEWS

The Infectious Diseases of Domestic Animals: By William Arthur Hagan, D. V. M., D. Sc. Ithaca, N. Y., Comstock Publishing Co., 1943. Pp. 665. Price, $6.00.

This is an excellent textbook of veterinary microbiology written by the Dean of the faculty of Cornell University Veterinary College. After a brief introductory discussion of the principles underlying the infectious process and immunological responses of the host to the introduction of the parasite, the author considers the various microorganisms encountered as etiologic agents of veterinary diseases. These include not only bacteria and viruses but also fungi and protozoa; for each there is a description of morphological and cultural characteristics, an outline of the modes of infection and mechanisms of resistance, the methods of diagnosis and control measures. No attempt is made to treat the subjects exhaustively but any person familiar with the contents of this book will have a good background for the study of veterinary infectious disease in the laboratory or field. All investigators working with experimental animals ought to have this book available for ready reference, in case they suspect or encounter pathologic conditions due to natural infections. The format, typography and illustrations are a credit to the publisher as well as the author.

MORRIS F. SHAFFER, Ph. D.

Virus Diseases: By members of the Rockefeller Institute for Medical Research. Ithaca, N. Y., Cornell University Press, 1943. Pp. 170. Price, $2.00.

Six of the outstanding Rockefeller Institute investigators of virus diseases have embodied in this excellent book the lectures which they delivered in 1942 at Cornell University under the Messenger Lecture Series. Other workers on viruses are indebted to Dr. Rivers, Stanley, Kunkel, Shope, Horsfall and Rous for the admirably comprehensive summaries of recent work in the fields of their respective interest as well as the thought-provoking and stimulating indications of some of which the gaps remain to be filled in the fabric of our knowledge. The book is particularly interesting since it brings together in a compact form the current scientific approaches to the problems involved in the study of plant viruses, as well as those of mammalian virus diseases (e. g. vaccinia, influenza and transmissible tumors).

At the low price of this volume, a new reprinting should be necessary in the near future.

MORRIS F. SHAFFER, Ph. D.

Geriatric Medicine: By Edward J. Stieglitz, M. S., M. D., F. A. C. P. W. B. Saunders Co., Philadelphia, 1943. Pp. 887. Price, $10.00.

In the foreword of this book Dr. Lewellys F. Bar-

ker points out that "The time is ripe for the appearance of a treatise on geriatric medicine suited to the needs of the general medical practitioner." This may seem like a trite statement but is a true one. The number of older people in this country is increasing almost by leaps and bounds and these old people require the service of a physician almost to the same degree as babies and children who are given care by the pediatrician. As a matter of fact, it seems quite likely that medical curricula within the next few years will have to devote almost as much time to diseases of old age as to diseases of infancy. While there may not be as many old people as there are babies of course, nevertheless the baby soon moves from the age of childhood into that of adolescence, but old people often keep on living and living and relatively they make as big a demand upon the time of the physician as do small children.

The book is edited by Stieglitz who contributes several well worth while chapters. For the other chapters and sections the editor has picked a group of men who can speak with authority and who can write good sensible advice about the aged. It hardly seems necessary to list all of the contributors, of whom there are some fifty-four. The material presented by Amberson, Carlson, Faust, Keefer, Oliver, Piersol, Reimann and Sebrell and the other authors is bound to be factual and authoritative.

The book is divided into eleven sections and subdivided again into a series of chapters. As would be expected, the greater amount of space is devoted to disorders of the circulatory system than to any other one system. This does not mean, however, that the alimentary system, the genito-urinary system, the blood, the central nervous system and other divisions of the body have been neglected; they have been covered well.

I believe this book would be of inestimable value to practitioners of medicine. There is a great deal that the physician does not know about disease as it exists in older people. Here he can obtain information which will be of very real value to him in his practice among the older generation.

J. H. MUSSER, M. D.

The Role of Nutritional Deficiency in Nervous and Mental Disease: Proceedings of the Association for Research in Nervous and Mental Disease, 1941. Baltimore, Williams and Wilkins, 1943. Pp. 215. Price, $4.00.

The almost inconceivable food requirements of our armed forces and our allies leave considerably less for home consumption than was formerly available. At the same time civilian activities must bear physical and mental burdens far greater than heretofore believed possible. For these and other reasons the data recorded in this volume are of great value.

In Chapter VII there is an interesting and important explanation of the discordant results attributed to vitamin A deficiency upon the nervous system. The treatment of the valuable material presented in Chapters XV and XVI is very lucid.

This book might well serve as a model for anyone who desires to do work in this field of research. It represents constructive effort and criticisms at its best. In its highly controversial field an attitude of tolerance, impartiality, and detched evaluation is maintained.

Although much of the material is highly technical the level of exposition is such that any educated reader should be able to understand the presentation without difficulty. Clarity and accuracy are of a high order.

Obviously, such a book will not appeal to a large number of readers but it suggests interesting methods of attacking the problems involved. Only time can determine if they are the methods best suited to the large and vital issues under consideration.

Excellent bibliographical citations are included.

C. P. MAY, M. D.

Nature and Treatment of Mental Disorders: By Don Thomas Verner Moore, G. S. B., Ph.D., M. D. New York, Greene & Stratton, 1943. Pp. 312. Price, $4.00.

Any idea that this is an elementary, uneven, diffuse book is quickly dispelled by delving into it. The wisdom, experience and eminence of the author also make it of contemporary value.

Early in the text Doctor Moore states "a mental disorder is not so much a disturbance of intercellular connections as it is an over accentuation of emotional experience or the upsetting of one's mental adjustment by the destruction of all possibility of attaining objects of desire upon which one's heart has seen set."

In Chapter III there are some interesting statistics concerning celibacy and mental illness. The author writes "it would seem that psychotic reactions have a tendency to develop wherever there is a condition of profound discontent whatever the cause. If sexual disorders are a factor in the development of the psychotic conditions, this does not come about through any necessary essential relationship between sexual maladjustment and psychotic conditions but by way of the paths of general discontent. Mental disorder is associated with maladjustment in general rather than with any specific type of maladjustment."

On page 126 it is stated that when a patient goes to a psychotherapist he has a definite "will to health" or he would not go. But when he starts treatment, this will to health becomes less and less because he expects the therapist to make him sound. A psychiatrist can only help a patient to see himself in a true light. The patient must work out a solution.

With reference to Educational Therapy there is a statement on page 215 that not all disabilities are rooted in the pathology of the home but many

have their origin in the school and can be cured by remedial teaching.

Chapter XVI, Hysterical Manifestations in Children, is most important and the material appearing therein is treated with unusual clarity.

This book has other values, too. Anyone who uses it will profit.

C. P. MAY, M. D.

The Modern Treatment of Syphilis: Edited by Joseph Earle Moore, M. D. Springfield, Illinois, Charles C. Thomas, 1943. Pp. 717. Price, $7.00.

This book is not profusely illustrated nor does it attempt detailed clinical descriptions of syphilitic lesions. It is a monograph presenting the significant features of the major problems associated with the syphilitic infection of the host and the community. The armamentarium necessary to manage each phase of this syphilitic invasion is amply described. Whenever possible, materials are critically examined by statistical methods and presented in table form. In the infection of the host, the subject matter is orderly arranged according to the broad diagnostic categories of each of the manifestations of early and prenatal syphilis in addition to separate treatment of congenital and late syphilis. The inclusion of the results of animal and clinical experiments in the rapid treatment of early infectious syphilis brings the book reasonably up to date. A comprehensive review of procedures applicable to the control of syphilis among naval, military and selected civil groups is presented. Each of the thirty-four chapters in this work is supplemented with an extensive bibliography, invaluable to the student. This authoritative volume, written in a direct and simple style, will be helpful not only to the specialist, but particularly to the clinician and student confronted with problems in any phase of the control of a syphilitic infection.

GEORGE LEIBY, M. D.

The Fundamentals of Endocrinology and Practical Endocrinotherapy: By Max R. Rubinstein, M. D. Chicago, Research Publishing Company, 1943. Pp. 417. Price, $8.00.

This book is exactly what it is represented to be, an outline or perhaps a brief tabulation of those characteristic features of the endocrine disturbances which the author considers essential.

The subject matter is comprised within four divisions of which the first part is the most extensive and contains discussions of the physiology and functions of the glands.

The second part consists of glandular disturbances including etiology, pathology and clinical findings very well tabulated for ready reference in diagnosis.

The third division comprises a series of rather crude line drawings intended to illustrate physical aberrations easily apparent to the eye, while the fourth and last part considers the subjects of obesity, sterility, and a few other subjects which may or may not have backgrounds of endocrine or vitamin deficiency. Finally, in this section are included the necessary laboratory procedures, but without specific directions for estimating amounts.

The book is a resumé, and a very abbreviated one. It is in no sense a volume one would refer to for detailed or theoretical discussions on most points in recent literature. That it is not intended to be such is evident from the structure of the text. Doubtless students would profit by using it.

L. C. SCOTT, M. D.

Text-book of Pathology; an Introduction to Medicine: By William Boyd, M. D., Ll. D., M. R. C. P. Ed., F. R. C. P., Lond., Dept. Psych., F. R. S. C. 4th ed. rev. Philadelphia, Lea and Febiger, 1943. Illus. pp. 1008. Price, $10.00.

In his fourth edition the author has sacrificed none of the "story telling style" which has made his previous editions so popular. Although shortened 56 pages through the deletion of certain chapters and "a tightening of the verbal belt," so aptly described by the author, many new and timely revisions and paragraphs have been added, making the book more complete and better without sacrificing the style so characteristic of the author.

His penchant for adding realisticly appropriate comments comes home like a "letter from London" in mentioning that "venous thrombosis has occurred in elderly patients who have spent long winter nights sitting in deck chairs in an air raid shelter eventuating in some instances in pulmonary embolism."

In teaching pathology one must occasionally err on the side of didacticism in order to bring clarity and order to his presentation and probably inspire such statements that embolic glomerulonephritis occurs only in subacute bacterial endocarditis. Also, such statements that the best results in radiation are seen in very anaplastic carcinoma of the cervix places too much weight on the histological, and minimizes far more important factors.

There have been many improvements over the previous editions and only a few can be mentioned. The chapter on immunity has been left out. The addition of sarcoidosis and its relation to uneoparoted fever is very timely. One wonders, however, why the characteristic tuberculin anergy was not included. Virus pneumonia has been added. However, the chapter on virus and rickettsial diseases occupies the same space as in the previous edition. Many additions like, Fiedler's myocarditis, disseminated lupus erythematosis, radiation, pneumonitis, erythroblastosis fetalis, Marchiafava-Micheli hemoglobinuria, are timely and well presented. The addition and emphasis of lycopodium peritonitis is of practical value to both the surgeon and surgical pathologist. The reviewer can well appreciate this as it was one of the problems that he encountered early in his training in pathology. Some of the newer and interesting developments of

the role of the mast cells of Erlich to the formation of heparin are of value. Vitamin "K" has been dealt with admirably in this edition.

On the whole the chapters are lucidly written. Those on the heart and vessels are well written. There has been a rearrangement and improvement concerning the etiology of tumors. The chapter on central nervous system is good and includes additions on equine encephalitis. The colored plate on subdural hematoma beautifully illustrates this condition. More illustrations and colored plates are present in this than the third edition.

On the whole the book is an improvement on an already good edition. The material has been brought up to date and many new features added. Its lucid style and descriptive inferential phrases are pleasing. It is very easy to read and highly informative, and should be a "must" addenda to the practitioner as well as the students collection. One should have no hesitation in recommendinig it.

BJARNE PEARSON, M. D.

Gynecology With a Section on Female Urology: By Lawrence R. Wharton, Ph. B., M. T. Philadelphia. W. B. Saunders Co., 1943. Illus. pp. 1006. Price, $10.00.

This is a large (1006 pp), well written, well illustrated textbook on gynecology and associated urological conditions. The medical, preventive, functional and organic aspects of diseases of the female are rather fully considered, and thoughtfully evaluated.

The many illustrations are well selected, and of excellent quality, though largely from secondary sources.

While one may pick many minor quarrels with the author (i. e., acceptance of Samuels' spectroscopic blood method of determining ovulation; Clow's treatment of dysmenorrhea; restoration of fertility in 35% of women under the age of 40 following myomectomy; etc.,) the book is a very worth while and useful text for medical students and physicians, and should be well and widely received.

B. B. WEINSTEIN, M. D.

Essentials of Gynecology: By Willard R. Cooks, M. D., F. A. C. S. Philadelphia, J. B. Lippincott Co., 1943. Illus. pp. 474. Price, $6.50.

This is a text primarily designed for the medical student and general practitioner, and proposes "to present concisely, from the practical viewpoint, and with as much correlation as possible, the salient features of the anatomy, pathology, symptomatology and therapy of gynecology." This is successfully done to a large degree.

The book is well illustrated and unusual in that most of the illustrations used are original. The line drawings are of real teaching value, the photomicrographs are clear and well selected. It is a good general gynecological book, but it contains sins of omission (e. g., failure to include description of bimanual examination), and sins of undue emphasis and arrangement (the chapter on functional diseases contains such variants as dyspareunia, dysmenorrhea, sterility, ectopic pregnancy) such that I do not feel that it is to be recommended for the purpose for which it was written.

B. B. WEINSTEIN, M. D.

Finger Prints, Palms and Soles: By Harold Cummins, Ph. D., and Charles Midlo, M. D. Philadelphia, The Blakiston Co., 1943. Illus. pp. 309. Price, $4.00.

As would be expected from the master pens of Cummins and Midlo this is an excellent monograph, of far wider interest than the idea "fingerprint" usually provokes.

As the authors point out "There is a prevalent but mistaken notion that dermatoglyphics have no importance beyond their use in personal identification. Perhaps because the publications of research are scattered, and the generalizations seemingly hidden in complexities of descriptive method, it is not generally appreciated that the patternings of epidermal ridges on fingers, palms, toes and soles have broader and more fundamental significance. The configurations are formed in the early fetus and they persist unchanged. Their variants exhibit differential trends among races, between the sexes and among constitutional types. Dermatoloplyphics also elucidate various morphological principles, including bodily symmetry. Some traits of the dermatoglyphics are heritable, hence they are useful in recognizing the types of twins and have promise of application in cases of questioned paternity. With these and related topics forming its central theme the present volume is designed to fill the want of a comprehensive treatise on dermatoglyphics."

The book is divided into three parts, and a useful working bibliography is appended. Part I considers the historical development and a general orientation of the field, Part II deals with methods and descriptions and Part III is devoted to the more fundamental biological phases of dermatoglyphice.

The first and third parts will be of greatest interest to physicians. The middle section, dealing with methods is somewhat difficult reading, not overly so for a technical discussion, and readily grasped by those with a modicum of scientific training and vocabulary.

This book fills a definite need, and should be widely and gratefully accepted and read.

B. B. WEINSTEIN, M. D.

Nervousness, Indigestion and Pain: By Walter C. Alvarez, M. D. New York, Paul B. Hoeber, Inc., 1943. Pp. 488. Price, $5.00.

After well spent, truly profitable, hours reading this latest Alvarez contribution the reviewer is uncertain as to whether it was intended for the laity or the medical profession. It is well, for the successful sale of the volume, that it was reviewed,

frankly advertised, by "Time"; this is not exactly the endorsement one seeks for a contribution to medical literature. The attention granted by "Time" will bring readers from the laity who, in their inability to enjoy and understand the volume, will bring criticism not primarily upon Alvarez but upon the medical profession who seemingly are revealed in their errors. The reviewer hopes this is merely an assumption on his part and that the book was neither designed for nor will it be widely read by patients.

Medically, it is an epic. This is psychiatry simplified and practically applied. A physician can read the content with ease and recount situations applicable to his experiences. The ease of presentation is remarkably simplified, though thoroughly scholarly, yet so interestingly readable. Never has the reviewer found such a wealth of knowledge and intimate instruction without tedious study.

Through thirty-four chapters covering four hundred and eighty-eight condensed pages one finds an unparalleled coverage of the psychiatry of gastroenterology. Many humorous illustrative incidents are related. Errors of diagnosis, organic or functional, are revealed with the ease of familiarity depicted. In the pseudo-diseases Alvarez brings to attention the mimic psychoneuroses can be. The pseudo-appendicitis and pseudo-cholecystitis descriptions should be emphasized, as they are here, to internist and surgeon that the "pseudo" aspect may be realized to prevent too many surgically managed patients.

Actual psychiatric entities, constitutional inadequacy, insanity, types of neurotic persons, menopause, are amplified and applied in a manner that will interest the psychiatrist.

Food allergy, actual and pseudo, is presented but the author is less interested in this "entity" than was expected; he refuses to be definite.

Headaches, migraine and migraine equivalents and many other symptom complexes which are headaches to all physicians are investigated.

The reviewer will read this book many times before he will be satisfied that he has gained all that he can from this contribution. He and other readers, physicians or students, will be better thinkers in the investigation of those "sensitive souls" afflicted with many symptoms. Finally, regardless of the author's intention, I feel this is a contribution to medical literature alone and not suited for the laity. I hope the earlier blight of a Time review and an J. A. M. A. endorsement does not mislead anyone to offer it to the patient other than to illustrate applicable sections.

Doctor Alvarez has been generous to give us so complete an insight into his sanctum.

GORDON MCHARDY, M. D.

PUBLICATIONS RECEIVED

Paul B. Hoeber, Inc., New York and London: Human Constitution in Clinical Medicine, by George Draper, M. D., C. W. Dupertuis, Ph. D., and J. L. Caughey, Jr., M. D., Med. Sci. D. Medical Parasitology and Zoology, by Ralph Welty Nauss, B. Sc., M. D., Dr. P. H.

J. B. Lippincott Company, Philadelphia, London and Montreal: Essentials of Dermatology, by Norman Tobias, M. D.

Columbia University Press, Morningside Heights, New York: Health Education on the Industrial Front, the 1942 Health Education Conference of the New York Academy of Medicine.

Harper & Brothers Publishers, New York and London: Childbirth without Fear, by Grantly Dick Read, M. A., M. D. (Camb.)

MacMillan Company, New York: At the University Press, Cambridge: The Permeability of Natural Membranes, by Hugh Davson, D. Sc. and James Frederic Danielli, D. Sc., A. I. C.

The Williams & Wilkins Company, Baltimore: Applied Dietetics, by Frances Stern.

The Johns Hopkins Press, Baltimore: On the Influence of Trades, Professions, and Occupations in the United States, in the Production of Disease, by Benjamin W. McCready, M. D. Maurice Arthus' Philosophy of Scientific Investigation, translated from the French by Henry E. Sigerist.

Envio del Instituto Nacional de Sandid, Madrid, Spain: Estudio Experimental de Una Cepa Apatogena e Immunizante de Rickettsia Prowazeki. Cepa E, by G. Clavero y F. Perez Gallardo. Tecnicas de Laboratorio en el Tifus Exantematico, by Prof. Dr. G. Clavero del Campo and Dr. F. Perez Gallardo.

Houghton Mifflin Company, Boston: Safe Deliverance, by Frederick C. Irving, M. D.